SOIL EROSION INVENTORY AND REPORT ON WATERSHED PROJECT ACTIVITY IN THE VERMILLION RIVER BASIN (07130002) AND THE ILLINOIS RIVER BASIN BELOW THE FOX RIVER AND ABOVE PEORIA (07130001)

PREPARED BY

HARRY HENDRICKSON
ASSOCIATION OF ILLINOIS SOIL AND WATER CONSERVATION DISTRICTS

UNDER CONTRACT #FWW1
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

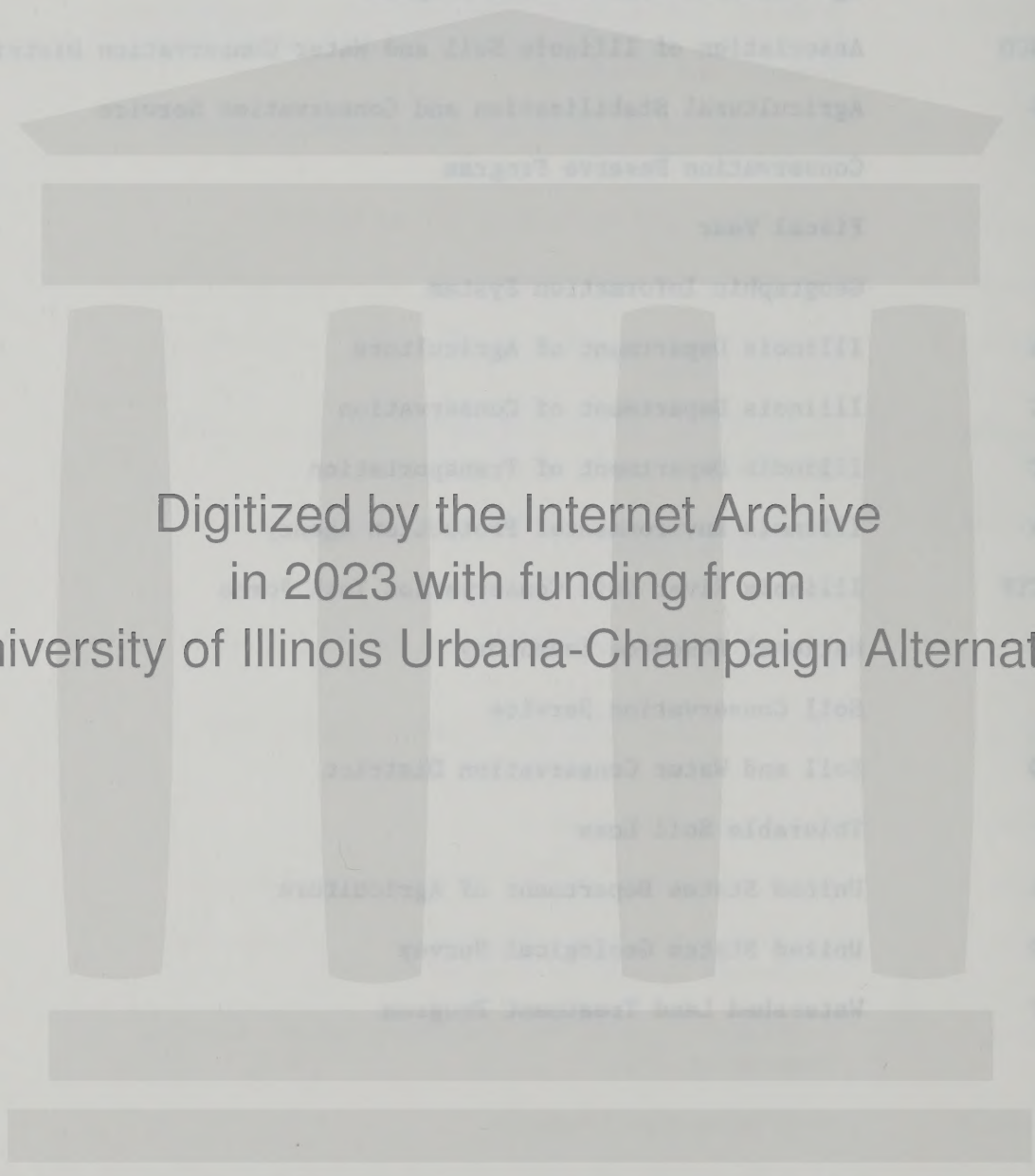
JUNE 29, 1986

TABLE OF CONTENTS

LIST OF TABLES, DIAGRAMS AND MAPS

ABBREVIATIONS USED IN THIS REPORT

ACP	Agricultural Conservation Program
AISWCD	Association of Illinois Soil and Water Conservation Districts
ASCS	Agricultural Stabilization and Conservation Service
CRP	Conservation Reserve Program
FY	Fiscal Year
GIS	Geographic Information System
IDOA	Illinois Department of Agriculture
IDOC	Illinois Department of Conservation
IDOT	Illinois Department of Transportation
IEPA	Illinois Environmental Protection Agency
IRSCTF	Illinois River Soil Conservation Task Force
NRI	National Resource Inventory
SCS	Soil Conservation Service
SWCD	Soil and Water Conservation District
"T"	Tolerable Soil Loss
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WLTP	Watershed Land Treatment Program



ACKNOWLEDGEMENTS

The author wishes to thank members and advisors of the Illinois River Soil Conservation Task Force for information and advice. The Illinois State Office of the Soil Conservation Service provided data from the National Resource Inventory and base maps from the Geographic Information Service supplied by the Illinois Natural History Survey. Peoria Lake sedimentation information was obtained from a recently completed investigation by Misganaw Demissie and Nani G. Bhowmik of the Illinois State Water Survey through a contract with the U.S. Army Corps of Engineers.

Thanks are also due to the Peoria, Tazewell, Woodford, Livingston, Marshall-Putnam, Bureau, and LaSalle County Soil and Water Conservation Districts for providing maps of their districts priority work and watershed project areas.

The Illinois Environmental Protection Agency provided funding and other support which is gratefully acknowledged. Finally, thanks to Carla Wallace for typing.

INTRODUCTION

Sedimentation is a natural process which has been greatly accelerated by human actions in the Illinois River watershed. The human forces which accelerate erosion and sedimentation processes can also be used to slow these processes to a rate closer to the natural rate.

Previous studies described and analyzed sedimentation of the river and its impacts (2,9). The need for control of sediment input was recognized as a key element -- dredging or raising the level of the dams can provide only a temporary solution without sediment input controls. These reports, however, viewed the problem from the water and did not utilize soil erosion information from the watershed.

This report provides information on soil erosion in the immediate 2.1 million acre watershed of the Peoria and Starved Rock Pools. It describes Soil and Water Conservation District programs to control erosion and advocates a series of watershed projects in critical sediment producing areas. Finally, this report recommends steps to accelerate the application of soil conservation practices and sediment controls.

BACKGROUND

A series of geologic and man-made developments need to be considered to understand the Illinois River and its watershed.

Willman (34) presents a geologic profile. Prior to the last glaciation or about 21,000 years ago, the present Mississippi River flowed eastward from northeast Rock Island County to Hennepin roughly along the course of the Hennepin Canal. From there, it followed the present Illinois River to Grafton. The broad, deep valley carved by the Mississippi and previous glacial melts is still visible. The Wisconsinan glacier, however, advanced westward over the Hennepin area and diverted the Mississippi down its present course. Following the melting of that glacier, drainage from the Upper Illinois entered this deep broad channel which had a great capacity, but little grade. The grade of tributary streams was much greater resulting in transport of sediment to the river and deposition there. Unlike most rivers the Illinois River aggraded its valley, rather than eroding it. These conditions caused the formation of deep river bottom lakes separated from the main channel by sediment bars.

Another geologic factor influencing sedimentation is the nature of soils in the watershed. The Eastern part of the watershed has thin, wind-deposited (or loess) prairie soils such as Varna, Elliott, Ashkum, Swygert and Bryce. This area is characterized by broad Wisconsinan morraines. Moving westward, the loess cap becomes thicker with a high percentage of Streater, Flanagan and Drummer. Still further westward deep loess soils such as Tama, Ipava, Muscatine and Sable predominate.

Along the Illinois River bluffs below Starved Rock, deep loess forest soils such as Fayette, Rozetta and Stronghurst predominate. In bottomlands alluvial soils such as Lawson, Sawmill, and Darwin predominate. There are also some sandy outwash soils such as Sparta and Dickinson in the glacial flood plain near Hennepin, Rome and Peoria (11). Virtually all of the upland soils when combined

with the favorable growing climate and enhanced with internal drainage and adequate soil conservation measures are productive and well suited for cropland. With the exception of the sandy outwash soils, their fine texture favors suspension and transport by water and deposition in a slow moving water.

Historical events which shaped the present condition of the Illinois River are listed by Bellrose, et al (2),

* The settling of the Illinois River Valley. This was accelerated by the advent of the steamboat in the 1820's. By 1900 there were 3.3 million people in the total Illinois River Basin.

* Construction of the Illinois and Michigan canal in 1848. This allowed economical transportation between the Great Lakes and the Illinois River. Also, three navigation dams were built in the 1870's and 80's.

* Construction of the Chicago Sanitary and Ship Canal in 1900. Lake Michigan water and untreated urban wastewater were diverted into the Illinois River. From 1900 to 1938 the diversion averaged 7,222 cubic feet per second (cfs). This increased the low water levels at Peoria by 5-6 feet and caused continuous flooding of bottomland forest and fields. Bottomland water areas more than doubled in acreage. (In 1961, the present 3,200 cfs level of diversion was established by court decree). Urban and industrial pollution increased and by 1922 its impact was seen throughout the upper Illinois River. It was devoid of important aquatic life as far south as Chillicothe.

* The construction of levees starting in the early 1900's. Levee and drainage districts removed almost 200,000 acres from the floodplain and placed them in agricultural use.

* The development in 1922 of the Chicago Sanitary District, and later other, wastewater treatment plants. These account for a gradual decline in urban pollution of the Illinois River.

* The construction of the present navigational locks and dams in the 1930's. These are at LaGrange, Peoria, Starved Rock, Marseilles, Dresden Island, Brandon Road and Lockport. This series of locks slowed the Illinois River even further and helped limit the effects of urban pollution.

* An increase in soybean production and decreases in animal agriculture, hay and oats production. These clear changes in agriculture, particularly from the 1950's to the present greatly increased the soils exposure to erosion and resulted in accelerated sedimentation (31). The use of various forms of conservation tillage with corn and soybean crops increased greatly since the late 1970's and this practice exposes less soil to erosion.

The present condition of the Illinois River and particularly the Peoria Pool indicates the need for improvements. Waterfowl production, especially along the backwater lakes from Hennepin to Grafton was excellent in the 1800's,

but it is now very limited due to sedimentation in backwater lakes (2). Many federal, state, municipal and private parks and wildlife refuges line major reaches of the Illinois River.

Water based recreation such as swimming, motorboating, waterskiing, and sailboating have been severely impacted by sedimentation. The Illinois State Water Survey documented the loss of 68% of the original volume of Lake Peoria. The average depth of Peoria Lake is now only 2.6 feet while in 1903 it was 8 feet. The soft silt deposits are resuspended by wave action resulting in high turbidity (9).

The impacts of sedimentation on flooding and barge transportation are not well documented. The U.S. Army Corps of Engineers maintains the 300 foot by 9 foot transportation channel at an estimated cost of 1 million dollars/year. Due to the nature of the fine silt, the powerful tow boats apparently "keep the mud flowing" in this channel. Dredging operations often center on deltas formed at tributary outlets. Flood damages in the Illinois River are estimated at $30 million annually. The storage of flood waters in the flood plain is not directly impacted by sedimentation in the river or in backwater lakes unless flow is impeded. Accelerated runoff from impervious surfaces (such as highways, parking lots and roofs) has a well documented effect on flooding.

The quality of water in the Illinois River and its backwater lakes is directly impacted by soil erosion. In 1985 the Illinois Environmental Protection Agency assessed the Illinois River from Starved Rock to LaGrange, and virtually all Illinois River bottom lakes, as severely impaired by nonpoint source pollution. Sediment from agriculture sources was identified as the principal pollutant (12).

The responsibility for reducing soil erosion and controlling sediment from agricultural sources was assigned by the Illinois Water Quality Management Plan to Soil and Water Conservation Districts in 1977 (19).

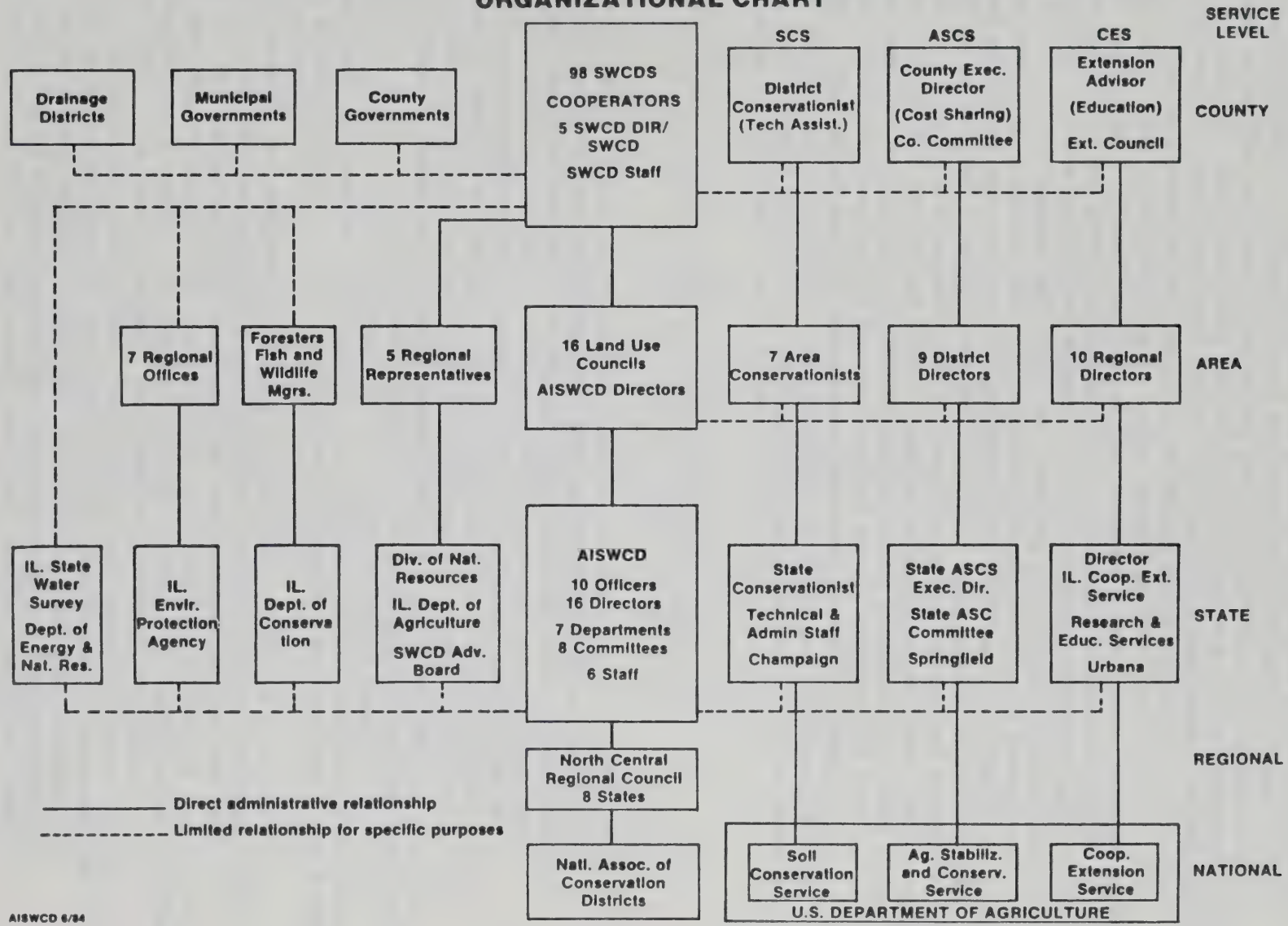
CONSERVATION DISTRICTS

Illinois has 98 special purpose units of state government called Soil and Water Conservation Districts (SWCD's) generally set up on county boundary lines which cover virtually the whole state. Districts develop rapport and working partnerships with land operators through 1) sound resource information and education, 2) technical assistance, 3) incentives, 4) recognition, and, 5) evaluation and operational maintenance based on mutually developed goals (7). Districts work cooperatively with many other conservation agencies to achieve their natural resource management objectives, but primary support comes from the Illinois Department of Agriculture (IDOA) and the U. S. Department of Agriculture (Diagram 1). The Soil Conservation Service (SCS) provides technical assistance. The Agriculture Stabilization and Conservation Service (ASCS) provides farmer cost sharing, and the Cooperative Extension Service (CES) conducts educational programs. District employees provide technical assistance, information programs, and demonstrations.

District directors are direct links to the most important part of the system--land operators. Illinois district directors contribute over one million dollars in time each year (13). Since districts have no taxing authority, directors are frequently searching for operating funds. Districts are organized in regional land use councils and a state association, which help develop a consensus on regional and state conservation issues.

SOIL AND WATER CONSERVATION DISTRICT (SWCD) AND ASSOCIATION OF ILLINOIS SOIL AND WATER CONSERVATION DISTRICT (AISWCD) ORGANIZATIONAL CHART

DIAGRAM 1



The Association of Illinois Soil and Water Conservation Districts (AISWCD), with financial backing of the Illinois Environmental Protection Agency (IEPA), emphasizes an action program of assisting SWCD's to develop local watershed projects. Over 90 local watershed projects with a variety of funding mechanisms are now operating, many with local funds. All projects are geared to meet the SWCD soil erosion standards in specific watersheds above affected waterbodies, but most have other goals relating to water resources.

In the Peoria to Ottawa section of the Illinois River, seven soil and water conservation districts have formed the Illinois River Soil Conservation Task Force (IRSCTF). (See by-laws in Appendix A). This not-for-profit corporation serves to coordinate member SWCD policies relating to sedimentation of the Illinois River, to exchange ideas and experiences, to achieve a consensus on watershed policies, and to transform policies into actions. The IRSCTF is composed of an elected director from each of the 7 soil and water conservation districts. Advisors are requested from local, regional, state and federal agencies. The press is invited to all task force meetings and excellent coverage has been provided on the Illinois River sedimentation problem. The task force seeks to provide information on the problem and secure support for SWCD soil conservation and water quality improvement measures in the watershed.

The districts' arrangements with numerous agencies and organizations are complex, but the soil erosion and sediment control standards help to unite this "conservation family" and give it direction and measurable goals.

SOIL EROSION AND SEDIMENT CONTROL STANDARDS

The Illinois Erosion and Sediment Control law was passed in 1977. The State Erosion and Sediment Control Guidelines were adopted in 1980 and each SWCD adopted soil erosion standards for agricultural land in 1982. Principles for reducing erosion on <u>non</u>-agricultural land such as construction sites were adopted, but no standards were enacted. For agricultural land to be in compliance it must be at or below "T" or the tolerable soil loss by the year 2000. Intermediate progressive steps were adopted as shown in Diagram 2.

Soil loss is measured by the Universal Soil Loss Equation and is based on seven factors (30). Tolerable soil loss ("T") is based on maintaining long term agricultural productivity. Although "T" is normally 3 to 5 tons of soil/acre/year, on certain fragile soils it is only 1 ton/acre/year. Livingston SWCD has a large portion of its area covered by fragile, shallow loess soils with low "T" values (20).

Soil erosion and sediment control standards are linked to a complaint program by which anyone may file a complaint on farmland within the SWCD. (See Diagram 3). Following an SWCD investigation and a determination the land exceeds the SWCD standards, the land user is provided with technical assistance and is requested to comply. If the land is not brought into compliance with the standards within one year, the SWCD, the IDOA and possibly the Illinois Pollution Control Board will conduct hearings. Cost share assistance amounting to $50,000 in state FY'1984-85; $100,000 in 1986; and $150,000 (proposed) in FY'1987 is made available to assist the land user on whom the complaint is filed. Up to 75% of approved costs are born by the state. This program is administered by the SWCD at the county level and IDOA at the state level.

SCHEDULE for ILLINOIS SOIL and WATER CONSERVATION DISTRICT'S SOIL EROSION and SEDIMENTATION CONTROL PROGRAM and STANDARDS

April 18, 1980 — **STATE EROSION & SEDIMENT CONTROL GUIDELINES ADOPTED**

April 18, 1982 — SWCD's adopted program and standards to be approved by Illinois Department of Agriculture

January 1, 1983 — Programs EFFECTIVE (in compliance) soil loss at or below 4 "T"* (4-20 tons/ac.)

January 1, 1988 — Land 5% slope or less - "T" or less (1-5 tons/ac.)
Other land - 2 "T" or less (2-10 tons/ac.)

January 1, 1994 — 1.5 "T" or less (1½-7½ tons/ac.)

January 1, 2000 — "T" or less (1-5 tons/ac.)

*"T" means tolerable average annual tons per acre of soil loss.

4A

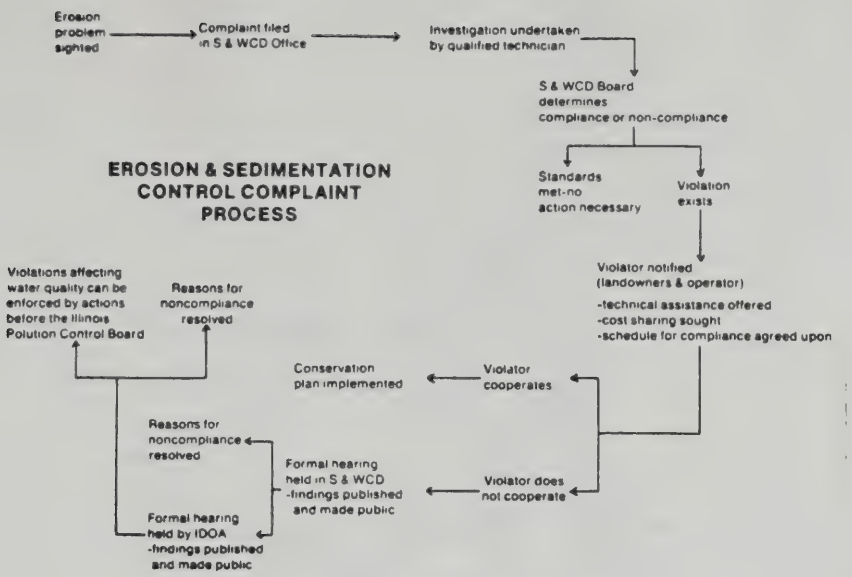


DIAGRAM 3
Schematic of Soil Erosion and Sediment Control Complaint Program

THE HYDROLOGIC UNITS

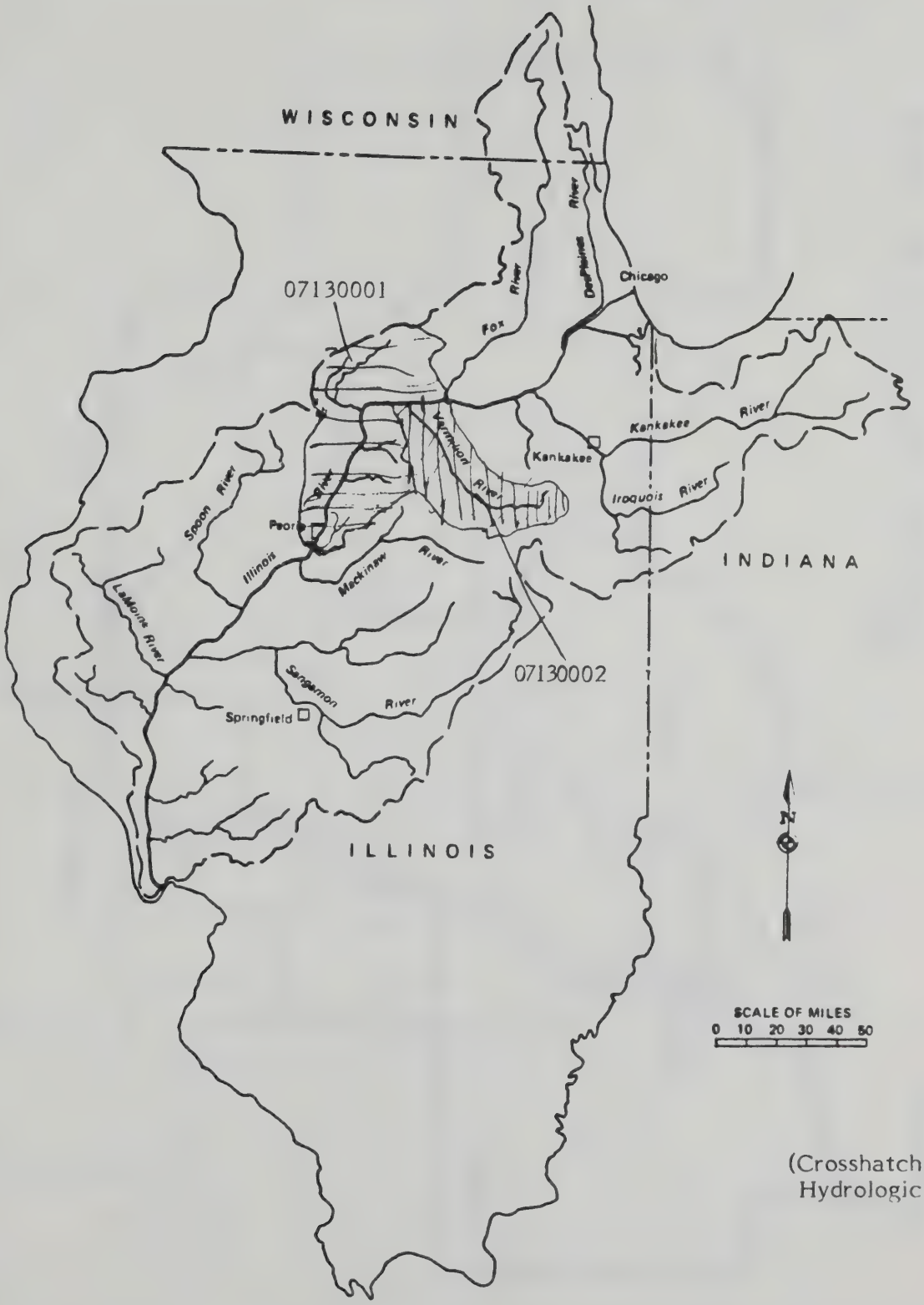
The U. S Geological Survey (USGS) has delineated major river basin and watershed units throughout the nation and these have been subdivided into smaller hydrologic units by SCS and SWCDs. Hydrologic unit identification is achieved by the use of a sequence of up to 13 digits indicating watershed boundaries (See hydrologic unit maps for LaSalle, Marshall/Putnam, Peoria and Wodford SWCDs in Appendix B).

Map 1 shows the total Illinois River Watershed comprising 18.5 million acres. The total watershed above Peoria is about 9.1 million acres of which 6.5 million acres are within Illinois, the remainder in Wisconsin and Indiana. The two river basins considered in this report comprise 2.1 million acres.

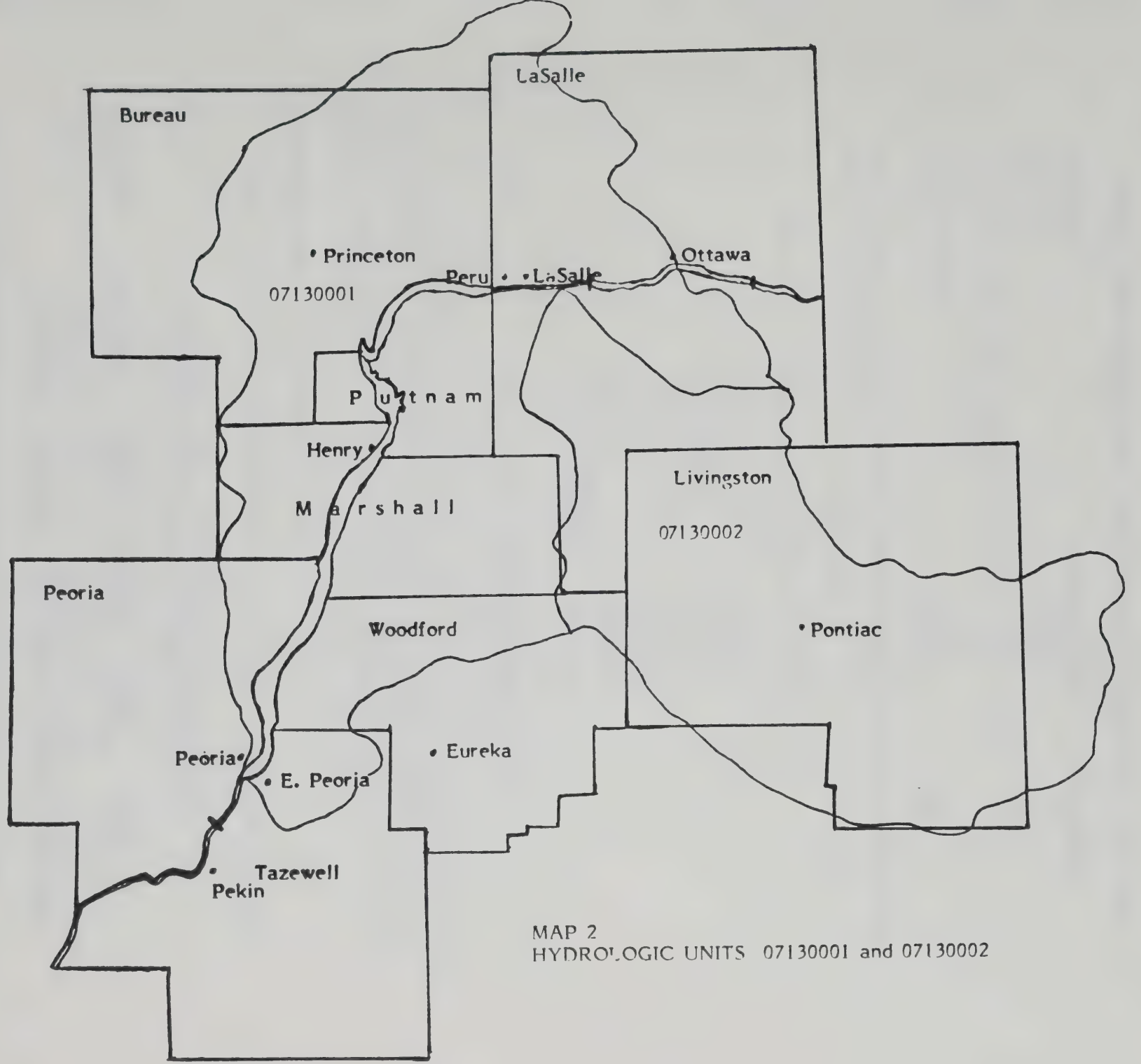
Map 2 shows the river basins considered in this report: the watershed of the direct Illinois River tributaries from Peoria to Ottawa (#07130001) comprising about 60% of the total watershed considered here, and the Vermilion River Watershed (#07130002), comprising about 40%. These basins were selected since they are direct tributaries of the Peoria to Ottawa reach of the Illinois River. The Starved Rock and Marseilles Locks and Dams may trap some of the sediment delivered from the Fox, Kankakee, DesPlaines, DuPage and other upper Illinois River tributaries, and these other watersheds are not considered here. This watershed area closely corresponds with the boundaries of the seven SWCDs in the IRSCTF which was established on a watershed basis.

WATERSHED LAND USES

Land uses in this watershed are shown in Table 1. Almost 85% is farmland and this is predominantly cropland with a corn and soybean rotation. Forest and pasture are concentrated along rivers, streams, and cropland is concentrated in the more level topography away from them.



MAP 1 Drainage Map of the Illinois River Indicating the River Basins Considered in this Report
Source: Illinois State Water Survey



MAP 2
HYDROLOGIC UNITS 07130001 and 07130002

TABLE 1 Watershed Land Uses (adapted from SCS NRI-82 and USGS data)

Land Use	Thousand Acres	Percentage
cropland	1,660	79
pasture	105	5
forest	125	6
urban/built up/commercial/industrial	60	3
water	41	2
miscellaneous*	109	5
Totals	2,100	100%

*Miscellaneous land uses include transportation, wetlands, utility lands, and transitional areas.

POPULATION

The 1980 U.S. Census figures for the 7 SWCD's follow:

Bureau	39,114
LaSalle	112,033
Livingston	41,381
Marshall/Putnam	20,564
Peoria	200,466
Tazewell	132,078
Woodford	33,320
Total Population in the 7 SWCD's	578,956

THE NATIONAL RESOURCE INVENTORY

The 1982 SCS National Resource Inventory (NRI) developed information on soil losses through the analysis of data collected in randomly selected sections of each county (26). Among other uses, the data was used to categorize land by erosion classes based on "T" and the Illinois standards for erosion control, as previously discussed.

Watershed Acres by "T" Classes

Table 2 presents watershed acreages in "T" classes by major land uses.

TABLE 2
WATERSHED ACRES BY "T" CLASSES AND LAND USE
Adapted from SCS-NRI-82 (Thousand Acres)

"T" CLASS	CROPLAND	PASTURE	FOREST	OTHER*	TOTAL
< T	1,002 (61)	94 (89)	114 (91)	204 (97)	1,414 (67)
T to 2T	453 (27)	7 (7)	3 (2)	1 (.5)	464 (22)
> 2T	205 (12)	4 (4)	8 (7)	5 (2.5)	222 (11)
	1,660 (100%)	105 (100%)	125 (100%)	210 (100%)	2,100 (100%)

*Other land includes urban built up, commercial, industrial, water and miscellaneous.

Analysis of this data indicates the overwhelming need for establishing soil conservation practices on cropland to meet erosion and sediment control standards. Almost 660,000 acres or 40% of the cropland in this watershed exceeds the tolerable soil loss. Only 28,000 acres or 6% of all lands other than cropland exceeds "T."

Cropland comprises 96% of the land exceeding the tolerable soil loss. Pasture and forest each comprise less than 2% of the land exceeding "T" and all other land under 1%. See Diagram 4.

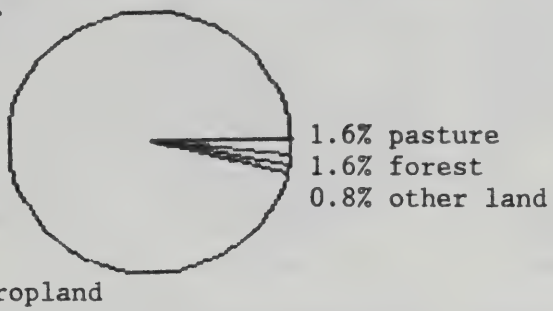


Diagram 4. Watershed Land Exceeding "T" by Land Use

Source: SCS-NRI-82

Cropland Erosion By SWCD

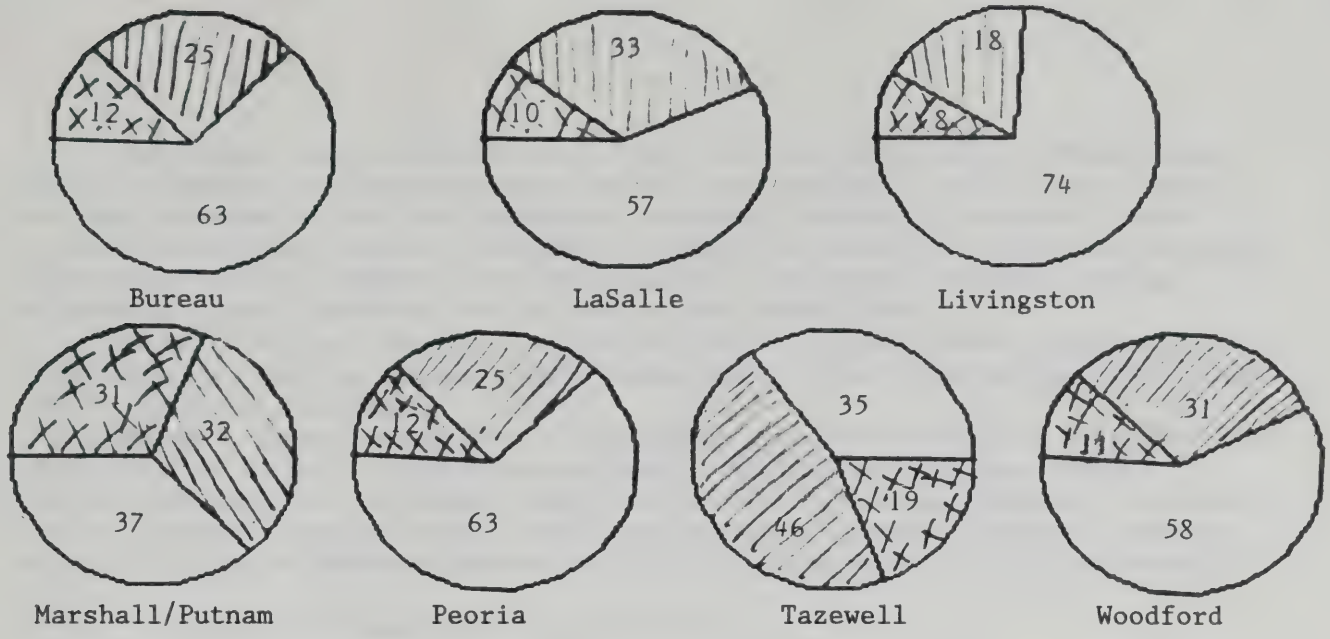
Table 3 presents cropland by "T" classes in the watershed by soil and water conservation district. Also, the excessive erosion was estimated by assuming an average soil loss of 7.5 tons/acre/year on "T" to 2"T" cropland and 18 tons/acre on > 2"T" cropland. This figure of "estimated excessive erosion" for cropland exceeding "T" may be useful for comparing sediment production potential. Treating cropland which exceeds "T" appears to have the greatest potential for sediment reduction in the watershed.

TABLE 3

Watershed Cropland Acres by > "T" Classes
and Estimated Excessive Cropland Erosion by SWCD
(adapted from SCS-NRI-82

County SWCD	Cropland Acres "T" - 2 "T"		Cropland Acres > 2 "T"		Estimated Excessive Erosion for cropland (Thousand tons/yr)	
Bureau	68,600	(18)	34,700	(18)	1,140	(18)
LaSalle	120,300	(31)	36,500	(18)	1,560	(24)
Livingston	83,700	(22)	36,200	(18)	1,280	(20)
Marshall/Putnam	79,700	(20)	77,800	(39)	2,000	(30)
Peoria	5.100	(1)	2,500	(1)	83	(1)
Tazewell	5,100	(1)	2,200	(1)	78	(1)
Woodford	27,900	(7)	9,400	(5)	380	(6)
	390,400	(100%)	199,300	(100%)	6,521	(100%)

Diagram 5 graphically shows the percentages of cropland by "T" classes within the watershed by SWCD.



Legend

< "T"

"T" to 2"T"

>2"T"

DIAGRAM 5 Distribution of Watershed Cropland by "T" classes by county.
Source: SCS-NRI-82

This comparison indicates that within the watershed, SWCD's have from 37% to 74% of cropland under the "T" standard. This presents SWCD's with the opportunity to concentrate their efforts on the most serious problem areas. Each district delineated its priority areas and these are included in the attached map. (See Appendix C) Marshall/Putnam and Tazewell SWCD have 65% and 63% respectively of their watershed cropland above the "T" standard, while Livingston SWCD has only 26% of its watershed cropland exceeding "T".

The distribution of watershed cropland with erosion from "T" to 2"T" and greater than 2"T" are compared in DIAGRAMS 6 and 7, respectively.

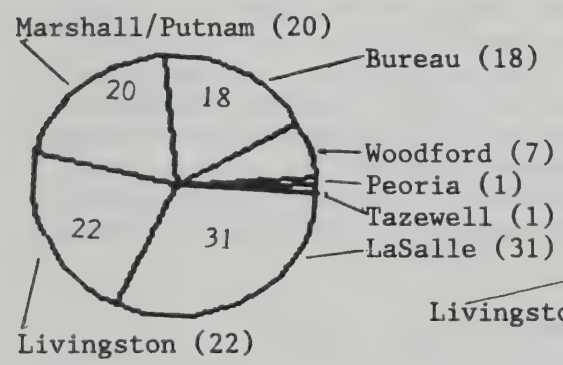


DIAGRAM 6 Distribution by SWCD of "T" to 2"T" cropland in the watershed
Source: SCS-NRI-82

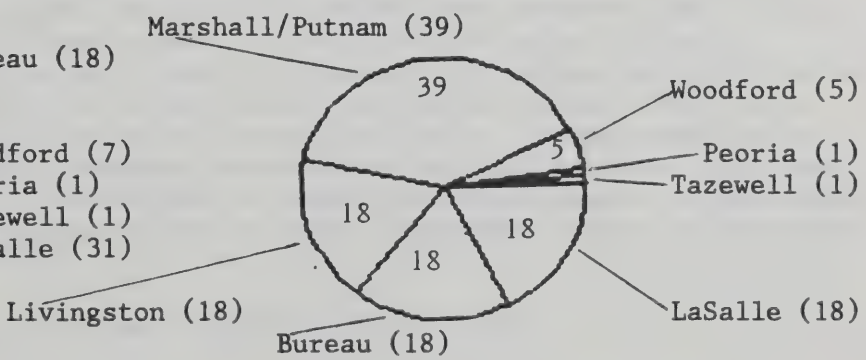


DIAGRAM 7 Distribution by SWCD of > 2"T" cropland in the watershed
Source: SCS-NRI-82

These comparisons indicate that within the watershed certain SWCD's have greater potential for sediment production from cropland. Due to their small cropland acreages within the watershed, sediment production potential from cropland in Peoria, Tazewell and Woodford SWCD's appears to be relatively small. Within these SWCD's erosion from other lands or streambank erosion may be relatively higher, however, due to their bluff topography.

Marshall/Putnam, LaSalle, Livingston, and Bureau SWCD have larger acreages of cropland within the watershed and consequently greater potential for sediment production from cropland.

Diagram 8 shows a comparison of estimated excessive cropland erosion within the watershed by SWCD. Although arbitrary, this method discussed above most heavily weights the steep lands most likely to produce sediment. Without a detailed sediment source survey, this comparison may serve as a comparison of potential cropland sediment sources for the Illinois River in this watershed.

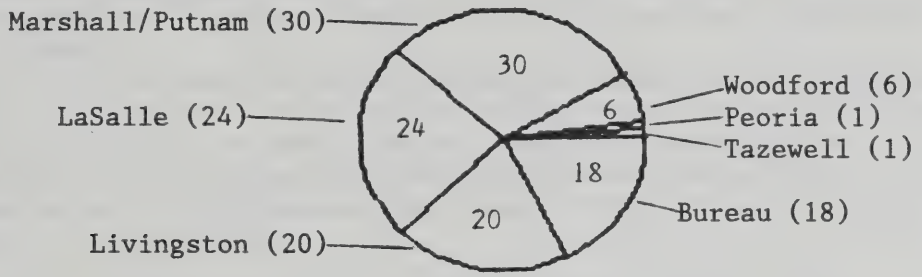


Diagram 8
Distribution of estimated excessive cropland erosion by SWCD.

The greatest potential for reducing sedimentation from cropland in this watershed appears to be in Marshall/Putnam, LaSalle, Livingston, and Bureau SWCD's. These four SWCD's account for 92% of the estimated excessive cropland erosion within the watershed. Each SWCD, however, has cropland acres which need concentrated conservation work.

Erosion from lands being developed may account for large sources of sediment and control of this sediment is possible through practices and ordinances set forth in the Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control (21) (See Appendix D).

In certain Illinois River tributaries with alluvial soils, streambank erosion is reported to cause a majority of the streams sediment load (22, 33). Studies are underway to characterize this streambank erosion. Stream channelization increases water velocity throughout the stream and accelerates streambank erosion. Also, in certain areas, accelerated runoff from steep pastureland causes gully erosion in flood plain fields. Since there is no procedure for estimating streambank erosion (such as the Universal Soil Loss Equation for sheet and rill erosion), a special inventory should be performed by qualified personnel in watersheds where severe streambank erosion is suspected.

SEDIMENT TRANSPORT AND DELIVERY

Much has been written elsewhere about factors influencing sediment transport and delivery (3, 5, 28). Sediment deposition in all Illinois River Valley Lakes is estimated at 15.4 million tons/year and sediment transported to the

Mississippi at 12.1 million tons/year (3). This total of 27.5 million tons of sediment delivered to the Illinois River can be used for comparison.

Based on Table 2 an estimate was made of sediment produced from all lands within this watershed. It was assumed that land below "T" averaged 3 tons of sheet and rill soil erosion/acre/year; land between "T" and 2"T" averaged 7.5 tons, and land greater than 2"T" averaged 18 tons. With these assumptions 11.7 million tons of gross sheet and rill erosion are estimated to occur annually on all lands in this watershed. Perhaps as much as 40% of this gross sheet and rill erosion or 4.7 million tons are delivered to the river annually (10). Certain lands closest to the streams and having steep convex slopes deliver more and others distant from streams and having concave slopes deliver less. Since streambank, gully, and megarill erosion may add an additional 20% of gross sheet and rill erosion and virtually all of this sediment is delivered (28), about 7 million tons of sediment may be delivered annually from this watershed. Although this watershed comprises only 11% of the total Illinois River Watershed, this estimate indicates it produces about 25% of the sediment delivered to the Illinois River.

A detailed sediment delivery estimate for each of the hydrologic units as developed at the SWCD level by SCS or SWCD personnel using the "Inventory and Evaluation Procedure for Land Treatment" would provide more specific delivery data, estimates of potential sediment yield reduction and cost estimates (28).

Summarizing, about cropland soil loss in the watershed, and sediment production in the watershed,

1. The Tazewell and Marshall-Putnam SWCD have the greatest proportion of their cropland within this watershed over the tolerable soil loss. Over 60% of watershed cropland in each SWCD is at or above "T".
2. Based on the cropland acres at or exceeding "T", over 90% of the excessive sheet and rill erosion within the watershed occurs in Marshall-Putnam, LaSalle, Livingston, and Bureau SWCD's.
3. Sediment delivery estimates need to be made for specific hydrologic units but an estimated 7 million tons of sediment are delivered to the Illinois River from this watershed. This watershed which comprises only 11% of the total Illinois watershed, appears to deliver about 25% of the sediment.

SWCD ACTION PROGRAMS

There are several actions possible for SWCD's to reduce sediment production. Four are considered here.

Complaint Program

As previously noted, all soil and water conservation districts adopted standards for soil erosion and sediment control and a complaint program. (See Diagrams 2 and 3.) To date 6 erosion complaints have been filed in these 7 SWCD's, and 2 were found to be valid. To date these have been resolved without hearings.(15)

Priority Area Designation

Each soil and water conservation district also established priority work areas where soil erosion was worst. These areas are characterized by soil loss greater than 2"T". SWCD priority areas are delineated in Appendix C. Most are in bluff or morraine areas where there is typically high sediment production.

With the development of priority work areas, technical assistance is directed to critical areas and contacts with landusers, conservation planning and implementation are accelerated. All existing or potential programs are reviewed with landusers in an effort to control erosion and sediment production.

Conservation Reserve Program (CRP)

This USDA program established in late 1985 may serve as an example of a program developed for priority areas. CRP goals include the retiring from production of Class VI through VIII croplands and any land over 2"T" in Class II through V croplands. A 10 year contract is offered to landusers for the development and maintenance of perennial grass, wildlife plantings, windbreaks, or trees. The landuser bids an amount, for example $70/acre/year, and if the bid is accepted, USDA will pay for half the cost of establishment of the permanent cover as well as the $70/acre/year rental over the 10 year period (25).

Due to the "sodbuster" provisions adopted at the same time, it is unlikely this highly erosive land will go back into production even after the 10 year contract. The final rules for the "sodbuster" provision are not published as of May, 1986. Soil and water conservation districts have the responsibility to approve (or disapprove) conservation plans for all lands to be retired under this program.

Based on the NRI data, the Soil Conservation Service estimated the seven SWCD's in this watershed have about 395,000 acres of cropland eligible for the Conservation Reserve Program (See Table 5). This represents about 15% of the cropland overall, but this varies from 8% in Livingston SWCD to 31% in Marshall/Putnam SWCD. Although these estimates of eligible cropland are based on county rather than watershed boundaries, they illustrate the potential for retiring erosive cropland in SWCD high priority areas. They reinforce the process of establishing priority areas (in this case >2"T" lands) and securing conservation programs in these areas.

Table 4
Cropland Eligible for the Conservation Reserve Program by SWCD

SWCD	Total Cropland Acres	Acres Eligible for CRP	Percentage of County Cropland Eligible for CRP
Bureau	461,500 (17)	69,000 (17)	15%
LaSalle	599,300 (22)	53,500 (13)	9%
Livingston	581,300 (21)	45,700 (12)	8%
Marshall-Putnam	251,300 (9)	77,400 (20)	31%
Peoria	245,100 (9)	63,900 (16)	26%
Tazewell	313,000 (12)	50,400 (13)	16%
Woodford	265,900 (10)	35,100 (9)	13%
	2,717,400 (100%)	395,000 (100%)	15% overall

Source: SCS Illinois State Office 1986

Watershed Project

Soil and water conservation districts have also established watershed project areas for concentrated conservation management. By working on a watershed basis the SWCD can make a significant impact on a specific water body. On the state level, the Soil Erosion and Water Quality Advisory Committee established a subcommittee on watershed selection and it coordinates funding for land treatment watershed projects throughout Illinois (6). Applications for several potential sources of project funding are submitted to this committee through a watershed selection process. (See Appendix E and F.)

Watershed project funding is used primarily to cost share with land users the application of needed conservation measures such as grass waterways, terraces, diversions, field borders, sediment basins, tree planting, or critical area seeding. Generally, technical assistance is provided by SCS, the SWCD, or the Illinois Department of Conservation. The landuser contracts for the work to be done by a contractor, and payment is made upon certification of the practice by a technician. The land user must maintain the practice within its lifetime established by the SCS Technical Guide (27) or return the cost share funding received.

Table 5 presents the status of watershed projects in this watershed. Two project applications were recently approved and funded: Crow Creek and Matthiessen Lake. Initially $102,000 of Agricultural Conservation Program funds administered by ASCS were used in the Crow Creek watershed. In January 1986, it was selected for the "Build Illinois" Watershed Land Treatment Program (WLTP) and $97,113 was allocated for state FY's 1986 through 1989.

The Matthiessen Lake Watershed was also approved for WLTP and a total of $47,000 was allocated for FY 1986 through 1987.

Another application from the Marshall/Putnam County SWCD for Sparland Creek watershed was recommended for additional study by the Illinois Department of Transportation (IDOT), but it has not yet received project funding. The Lake Wildwood watershed application is still pending May 1986.

The Tazewell, Woodford and LaSalle SWCD's requested and received WLTP funding for the Dillon Creek, Lake Eureka and Crotty Creek Watershed Projects respectively. Although these are within the 7 SWCD's area and the Illinois River Watershed they are not in the watershed considered in this report.

The Bureau County SWCD and LaSalle SWCD received funding under P.L.83-566 Small Watershed Program administered by the SCS for the Tiskilwa and Mendota projects, respectively. Although the primary benefit of each project was flood control, each also produced significant sediment reduction benefits.

The LaSalle SWCD chose two additional watershed project areas for development: Upper Covel Creek and the Lower Pecumsagan and Tomahawk Creek Watersheds. The Peoria SWCD and Marshall/Putnam SWCD chosen the Senachwine Creek (South) Watershed and the Marshall/Putnam SWCD chose the Senachwine Creek (North) for watershed project development.

TABLE 5
SWCD Watershed Projects

SWCD	Project Name	State or Federal Funding Allocated	Funding Source	Remarks
Bureau	Tiskilwa	$ 531,505	SCS-PL566	Finished 1961
LaSalle	Mendota	1,250,193	SCS-PL566	Finished 1985
	Matthiessen Lake	47,000	WLTP	FY'86&87
	Crotty Creek	39,308	WLTP	FY'86
	Upper Covel Creek	----------	under development	
	Lower Pecumsagen-Tomahawk	----------	under development	
Marshall/ Putnam	Crow Creek	102,000	ACP	FY'81-84
	Lower Crow Creek	97,113	WLTP	FY'86-90
	Sparland-Gimlet & Thenius Creek	----------	pending	10,300 acres IDOT Recon Study
	Wildwood (Shaw Creek)	----------	pending	7,085 acres (Pvt.Lake Dev.)
	Senachwine Creek(south)		under development	
	Senachwine Creek(north)		under development	
Peoria	Senachwine Creek(south)	---------	under development	
Tazewell	Dillon Creek	240,750	WLTP	FY'86-90
Woodford	Eureka Lake	65,245	WLTP	FY'86-87

Potential reservoir sites need watershed land treatment to protect investments of funding in water resources. Potential reservoir sites were identified by the Illinois State Water Survey (8).

Generally, these SWCD's have actively pursued the watershed programs available. This report may serve as encouragement for all SWCD's in this watershed to consider the Illinois River as a severely impacted water body and to develop watershed projects for SWCD identified priority areas.

DEVELOPING A WATERSHED IMPLEMENTATION PLAN

To achieve a concentrated effort in a watershed it is recommended that a work plan be established as a means of initiating a watershed project. Five major items are considered in developing a watershed work plan:

1. Securing sound resource information, such as available through the National Resource Inventory, Cooperative Soil Survey, topographic maps, and the Geographic Information System.
2. Developing an information and education program geared to landusers in the watershed area and to securing community support. Service organizations, the press, legislators, and other community leaders need to be asked for their understanding and support.
3. Securing or providing technical assistance for project planning, on-site conservation planning, layout, certification, and evaluation. A team of technical advisors is envisioned, anchored by the Soil Conservation Service. Each technical person has expertise in specific

disciplines. If asked early in the project, staff persons from various agencies, institutions, and businesses can help in setting goals and can build the project into their work plans. The SWCD should specifically ask for needed services.

4. Providing cost sharing, other incentives and recognition to landusers who apply conservation practices.
5. Monitoring and evaluation based on established goals.

Additional steps found to be useful in establishing a watershed project are provided in Appendix G. This model work plan was developed through an analysis of work plans in successful watershed projects. It is in a work plan format with suggested responsibilities and approximate time allocations. It presents a check list of items to be considered, but it must be adapted to local needs. The most needed and time consuming elements in the development of a watershed project are making preliminary contacts with watershed landusers and developing a watershed resource plan. The "Grey Book" (Inventory and Evaluation Procedure for Land Treatment) (28) developed by the SCS Water Resource Planning Staff in Illinois provides an excellent inventory procedure based on onsite conservation planning. It provides a method to estimate treatment, technical assistance and funding needs, and anticipated sediment reduction benefits. It serves as the basis for a watershed resource plan and documents needs for potential watershed project funding applications.

Under current guidelines, applications for the Illinois Watershed Land Treatment Program need to include the following information:

1. Geographic information including land uses and potential impacts on the Illinois River or other water bodies.
2. Quantification of resource concerns and needs on priority areas (generally B or greater slopes with greater than "T" soil loss).
3. Description and quantification of resource management systems needed to treat the priority areas.
4. Cost estimates for practices eligible for cost sharing.
5. On and offsite benefits, quantified if possible.
6. A time schedule for the application of practices and related funding needs.
7. A description of measureable achievements which will enable measurement of the projects success.
8. Evidence of interest and cooperation of landusers in the priority area.

The initial step in a watershed project is an expression of interest and need. The soil and water conservation districts have already done this by establishing priority areas. Preliminary contacts with landowners will help determine landuser interest and support. If landuser support is evident the next step is normally the development of a "Grey Book" Inventory, watershed work plan and an application. Successful watershed projects often involve many people from many disciplines.

GOAL SETTING FOR WATERSHED PROJECTS

It is very useful to have both technical and popular goals. "T" or tolerable soil loss is an understandable goal for many farmers, but re-establishing a bass fishery in XX Creek or keeping XX tons of sediment out of

the Illinois River may be more understandable by the general public. Goals should be tied to conditions and uses of the waterbody. Finally, goals should be developed with a team of technical advisors having expertise in the subjects of the goals. Through an interdisciplinary approach, adequate goals, work plans and evaluation techniques can be developed and implemented. The following are examples of goal expressions possible for Illinois River Watershed Projects.

1. Reduce soil erosion on farmland in priority erosion areas to "T" or below and thereby reduce sediment delivered to XX Creek by XX tons/year.
2. Reduce sediment delivered to the Illinois River flood plain (or a flood plain waterway) by XX tons/year.
3. Decrease the rate of delta formation of the XX Creek by 50%.
4. Reduce sediment cleanout requirements in XX ditch by 50%. (Before the project it must be cleaned every 4 years, after the project only every 8 years.)
5. Maintain the boat races or water skiing in XX Lake for at least XX years instead of XX years under the present sedimentation rate.
6. Reduce the need for dredging in XX (backwater) Lake by half. (Part of Lake Depue was dredged by IDOC in 1982 for about $1 million.)
7. Reduce sediment load in XX Creek from XX tons/acre to XX tons/acre.
8. Reestablish XX fishery in XX Creek.
9. Double the average Secchi disc reading (water transparency) in XX (backwater) Lake.
10. Reduce the incidents of flooding along XX Creek through stormwater detention.
11. Reduce ditch maintenance needs by 75% along XX highway.
12. Reduce the calculated water velocity from XX to XX in (Bluff Creek) by installing drop structures, energy diffusers, or other conservation practices.
13. Reduce soil erosion to "T" or below in the watershed of XX potential reservoir site.
14. Reduce sediment delivered to the Illinois River from XX Creek by installing a sediment debris basin at an appropriate locations along the base of the bluff.
15. Reduce streambank erosion by half through the installation of protective seedings or armor.

SUMMARY

The Illinois River is severely impacted by accelerated sedimentation. The analysis of soil loss data obtained from the National Resource Inventory and of SWCD action programs are useful in demonstrating the connection between cropland soil erosion and sedimentation.

The immediate watershed of the Peoria and Starved Rock Pools includes major parts of seven soil and water conservation districts. This watershed comprises about 11% of the total Illinois River Watershed but may contribute 25% of the sediment. Certain areas contribute more sediment and these have probably been identified by SWCD's. In certain tributaries, especially those which have been channelized, a majority of the sediment load may be derived from streambank erosion.

During the past several years, SWCD action programs for watershed protection were accelerated in this watershed but they need to be accelerated even more. Suggested steps in planning and implementing watershed projects are listed. Soil and water conservation districts need local, state, and federal support to carry out their mission of reducing erosion and sedimentation.

RECOMMENDATIONS

For SWCD's

1. Continue the development of hydrologic unit planning and implementation.
   a. Complete the delineation of hydrologic units.
   b. Prioritize the hydrologic units for resource planning.
   c. Assess landuser interest, carry out the SCS Inventory and Evaluation Procedure, develop a work plan, and secure funding for watershed projects in SWCD priority areas.
2. Continue to request resources from various agencies and organizations to accelerate soil conservation programs in priority areas.
   a. Request a River Basin Study from SCS. This would analyze the problems in more detail and review alternative solutions.
   b. Request information and assistance from the following agencies related to development of watershed project goals, assistance to landusers and monitoring: Cooperative Extension Service; Illinois State Water Survey; Illinois Environmental Protection Agency; Ag Stabilization and Conservation Service; Illinois Department of Conservation -- Watershed Office, Fisheries Office, and Forestry Office; Illinois Department of Agriculture -- regional representatives; U. S. Army Corps of Engineers; regional planning agencies; county planning or zoning agencies; homeowners associations; civic and sportsmen's organizations.
3. Build support for watershed projects through information and education activities coordinated with the Cooperative Extension Service and other organizations.
   a. Carry out tours.
   b. Provide information through newsletters.
4. Direct technical and financial assistance to activities in critical sediment producing areas and incorporate specific actions to be taken in the annual SWCD Plan of Work.
5. Promote the Conservation Reserve Program.
6. Document and publicize SWCD progress and needs.
7. Continue to work together through the Illinois River Soil Conservation Task Force.
   a. Strengthen the structure of the Task Force by securing a watershed coordinator to provide public information and assist with the development and implementation of watershed plans.
   b. Continue meeting on a regular basis, providing policy direction for watershed implementation, raising funds for task force activities and providing information on watershed activities. An annual work plan, land and water tours, special informational

meetings, and representation on other committees should be continued or expanded.

c. Continue requesting assistance from various agencies, businesses, and foundations to meet Task Force goals.

8. Utilize the complaint program for solving critical erosion problems.
9. Provide assistance to municipalities as requested in developing and enforcing their sediment reduction procedures and ordinances such as those in the Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control (20).

For state and federal agencies

1. Recognize the immense economic value of the Illinois River. The Illinois River and its backwater lakes should not be written off. Moderate improvements in water quality and sediment analysis results due to improved wastewater treatment are encouraging but sediment pollution must be controlled to show improved water usability.
2. Encourage and support the reduction of river sedimentation through the establishment of watershed projects in SWCD priority areas.
3. Support SWCD's with the planning and implementation of priority watershed projects.
4. Participate in a river basin study to develop costs and benefits of alternatives of reducing sedimentation from all sources to the Illinois River and its backwater lakes.
5. The coordination of various management schemes and a conference on the Illinois River are desirable. Perhaps an Illinois River Plan similar to the State Water Plan should be developed. Goals for various aspects including tourism, transportation, water quality, recreation, industrial use, fisheries, flood control, soil and sediment control, and forestry management can be complementary goals. A conference would be an excellent means of initiating this plan and the dialogue needed to develop support for it.
6. Organize and conduct a statewide conference on stream maintenance which would address streambank stabilization, impacts of hydrologic modification, and assessment of state and local roles.

For municipal governments

1. Reduce sediment production within your jurisdictional boundaries through improved procedures and ordinances. Analyze your municipal activities to reduce sediment production. All municipal projects such as road and sewer improvements should include the immediate seeding landscaping of disturbed areas. Ordinances to control construction site erosion can be developed with start-up assistance from the SWCD. A cooperative stream maintenance program can be established to beautify, maintain and protect streams. Stormwater management procedures and ordinances reduce streambank erosion by slowing water.
2. Request technical assistance from SWCD's, if necessary, to develop municipal expertise in erosion and sedimentation control.

3. Support SWCD efforts to control erosion on rural lands affecting your municipality.
4. Provide financial or in-kind support for SWCD watershed project activities--SWCD's do not have taxing authority but do have the authority to work with private landowners on conservation projects.
5. Request appropriate assistance from state and federal agencies.

For business and civic leaders

1. Ensure that all land under your control is not a source of sediment for the river.
2. Support the Illinois River Soil Conservation Task Force. Its members represent the immediate watershed of the Peoria and Starved Rock Pools and its advisors provide a liaison with appropriate regional, state, and federal agencies.
3. Support the concept of a state sponsored Illinois River Plan. Civic and industrial investments warrant maintenance and expansion of existing uses of the Illinois River.

LITERATURE

1 Association of Illinois Soil and Water Conservation Districts. 1986. Watershed Tracking System (unpublished)

2 Bellrose, F.C., F.L. Paveglio, Jr., and D. W. Stuffeck. 1979. Waterfowl populations and the changing environment of the Illinois River Valley. Illinois Natural History Survey, Bulletin 32, Article 1, Urbana, Illinois, 54p.

3 Bhowmik, N.G., et al, 1984. Conceptual Models of Erosion and Sedimentation in Illinois, Volumes 1 and 2, Illinois Scientific surveys joint report 1, Illinois Department of Energy and Natural Resources. Champaign, Illinois.

4 Butts, T.A., R.L. Evans, and S. Lin. 1975. Water Quality Features of the Upper Illinois Waterway, Illinois State Water Survey, Report of Investigation 79, Champaign, Illinois.

5 Clark, E.H., J. A. Haverkamp and W. Chapman, 1985. Eroding Soils: the Off-farm Impacts The Conservation Foundation, Washington D.C. 252 pp.

6 Davenport, T. 1983. Process to identify, screen, and prioritize rural water resource and lake rehabilitation projects in Illinois. In Lake and reservoir management. North American Lake Management Society, Washington, D.C., pp 87-91.

7 Davey, W.B. 1977. Conservation districts and 208 water quality management, National Association of Conservation Districts, Washington, D.C. 344 pp.

8 Dawes, J., and M. Terstriep. 1966. Potential surface water reservoirs of North Central Illinois. Illinois State Water Survey, Report of Investigation 56, Champaign, Illinois.

9 Demissie, M. and N.G. Bhowmik. 1986. Peoria Lake Sediment Investigation, State Water Survey Division Illinois Department of Energy and Natural Resources, Contract Report 371, Champaign, Illinois. 1986.

10 Donelson, Keith, Soil Conservation Service, Personal communication. 5/15/86.

11 Fehrenbacher, J.B., et al. 1984. Soils of Illinois, University of Illinois Agricultural Experiment Station in Cooperation with the Soil Conservation Service, Bulletin 778, Champaign, Illinois 85 pp.

12 Frevert, T. 1985. Illinois submittal report In America's Clean Water: The state's nonpoint source assessment 1985, Association of State and Interstate Water Pollution Control Administrators, Washington, D. C.

13 Hendrickson, H., G. Deverman, and J. Pendowski. 1985. Illinois agricultural soil erosion control standards: a useful tool for nonpoint source pollution control, in Perspectives on nonpoint source pollution. USEPA, Washington, D.C., pp 459-463.

14 Hendrickson, H., W. Fitzgerald, R. Rowe, 1983. Illinois soil and water conservation districts' action program for lake watershed improvement in Lake and reservoir management, North American Lake Management Society, Washington, D.C., pp 555-557.

15 Illinois Department of Agriculture. 1986. Status of soil erosion and sediment complaints. (unpublished)

16 Illinois Department of Agriculture. 1985. T by 2000: A state plan for meeting "T" or tolerable soil losses in Illinois by the year 2000, Springfield, Illinois, 54 pp.

17 Illinois Department of Energy and Natural Resources. 1984. Proceedings of the Illinois Conference on soil conservation and water quality, #84-02, Springfield, Illinois, 223 pp.

18 Illinois Department of Transportation, Illinois State Water Plan Task Force. 1982. 1981 Progress Report, Springfield, Illinois, 197 pp and appendix.

19 Illinois Environmental Protection Agency. 1983. Illinois Water Quality Management Plan, Springfield, Illinois.

20 Livingston County Soil and Water Conservation District. 1981. Long range program, Pontiac, Illinois, 52 pp.

21 Northeastern Illinois Soil Erosion and Sedimentation Control Steering Committee. 1981. Procedures and Standards for Urban Soil Erosion and Sedimentation Control in Illinois, Springfield, Illinois.

22 Roseboom, D. Illinois State Water Survey. Personal Communication. 5/20/86.

23 Tri-County Regional Planning Commission. 1983. Peoria Lake: A question of survival, East Peoria, Illinois, 32 pp.

24 Upper Mississippi River Basin Association. 1984. Erosion in the upper Mississippi River System: an analysis of the problem.

25 USDA, Agricultural Stabilization and Conservation Service. 1986. Establishing practice specifications and cost share rates for CRP. Washington, D.C.

26 USDA, Soil Conservation Service Illinois State Office. 1982. National resource inventory, Champaign, Illinois. (unpublished)

27 USDA, Soil Conservation Service Illinois State Office. 1986. SCS Technical Guide, Champaign, Illinois.

28 USDA, Soil Conservation Service, Water Resource Planning Staff. 1984. Inventory and evaluation procedure for land treatment, Champaign, Illinois, 34 pp.

29 USDA, Soil Conservation Service, Water Resource Planning Staff. 1985. Watersheds in Illinois: based on water resources council hydrological units. Champaign, Illinois.

30 Walker, R.D., and R.A. Pope. 1983. Establishing your soil erosion losses with the universal soil loss equation (USLE), University of Illinois Cooperative Extension Service Circular 1220, Champaign, Illinois 19 pp.

31 Walker, R.D. 1983. Historical changes in Illinois agriculture. In Proceedings of Illinois Conference on Soil Conservation and Water Quality, Illinois Department of Energy and Natural Resources. Springfield, Illinois pp.1-17.

32 Welch, P.C., ed. 1977. Future problems and water resources research needs of the Illinois River system, University of Illinois Water Resources Center, Special Report 6, Champaign, Illinois, 212 pp.

33 White, William, Illinois Department of Conservation. Personal Communication 5-8-86.

34 Willman, H. B. 1973. Geology along the Illinois Waterway -- a basis for environmental planning, Illinois State Geological Survey Circular 478, Champaign, Illinois.

INTERIM BY LAWS

THE ILLINOIS RIVER SOIL CONSERVATION TASK FORCE

1. The Illinois River Soil Conservation Task Force is an organization comprising the following Soil and Water Conservation districts ("SWCDs") which have a majority of their jurisdiction in the Illinois River Watershed: Livingston, LaSalle, Bureau, Marshall/Putnam, Woodford, Tazewell, and Peoria SWCDs. Additional districts may be added on written request of the district and approval of the Board. The Task Force is set up for the following purposes:

   a. To coordinate member SWCD policies relating to sedimentation of the Illinois River.

   b. To exchange ideas and experiences of member districts.

   c. To achieve a consensus on soil conservation policies relating to the Illinois River Watershed.

   d. To transform policies into action.

2. The Board of Directors consists of one SWCD director or associate director from each SWCD selected by that district. This director and an alternate director shall be listed in the SWCD annual work plan.

3. The presence of directors from any four SWCDs at a Task Force meeting constitutes a quorum. Each SWCD represented at the meeting by a district representative will have one vote on all business to come before the meeting.

4. The Task Force officers are a chairman, vice-chairman, and secretary/treasurer, all from different SWCDs. They will be elected to serve for a period of one year. No officer may hold the same office for more than two consecutive terms. The officers of the Task Force will be elected by the voting membership.

5. Meetings of the Task Force shall be called by the Chairman with at least one month notice.

6. The Task Force may request non-voting, advisory membership from private enterprise, organizations and agencies.

7. The Executive Committee, consisting of the elected officers, may develop organizational and financial proposals to implement Task Force Programs.

8. The Executive committee will review the By-Laws annually. Any recommended change or amendments shall be considered for approval at the next Task Force Meeting provided each district has been notified of proposed changes at least thirty days prior to the meeting.

9. Business meetings will follow ROBERTS RULES OF ORDER.

10. All meetings of the Task Force will have public notice as required under the public meetings law.

11. The Task Force shall be organized as a not for profit corporation in accordance with the General Not for Profit Corporation Act of the State of Illinois, Chapter 32, 163a of the Illinois Revised Statutes, and Section 501(c)(3) of the Internal Revenue Code.

12. The Task Force may be dissolved by a two-thirds (2/3) vote of all members through mail balloting. If dissolution is favorably acted upon, all assets will be distributed to an organization of the type described in Section 501(c)(3) of the Internal Revenue Code, or corresponding section of any future federal tax code.

13. LIABILITY:

SECTION A. It is implicitly understood that the Task Force assumes no responsibility for the well-being of any member or representative of a member attending, managing, or participating in meetings or any other functions of the Association.

SECTION B. No Officer or Director, former Officer or Director, nor any authorized agent of the Task Force shall be liable in any manner to the Task Force or any person or group for any loss or damage sustained as a result of action taken or omitted to be taken by said Officer, Director, or agent in good faith, if he/she exercised or used the same degree of care and skill as a prudent person would have exercised or used under the circumstances in the conduct of his/her own affairs.

Adopted as interim by-laws 6/28/85

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

VICINITY MAP

LEGEND

- Hydrologic River Basin Boundary
- 07130001 Hydrologic River Basin Number
- Watershed Boundary
- 060 Watershed Number
- Subwatershed Boundary
- 20 Subwatershed Number

HYDROLOGIC UNIT MAP

WOODFORD COUNTY, ILLINOIS

0 1 2 3 4 5 MILES

0 1 2 3 4 5 KILOMETERS

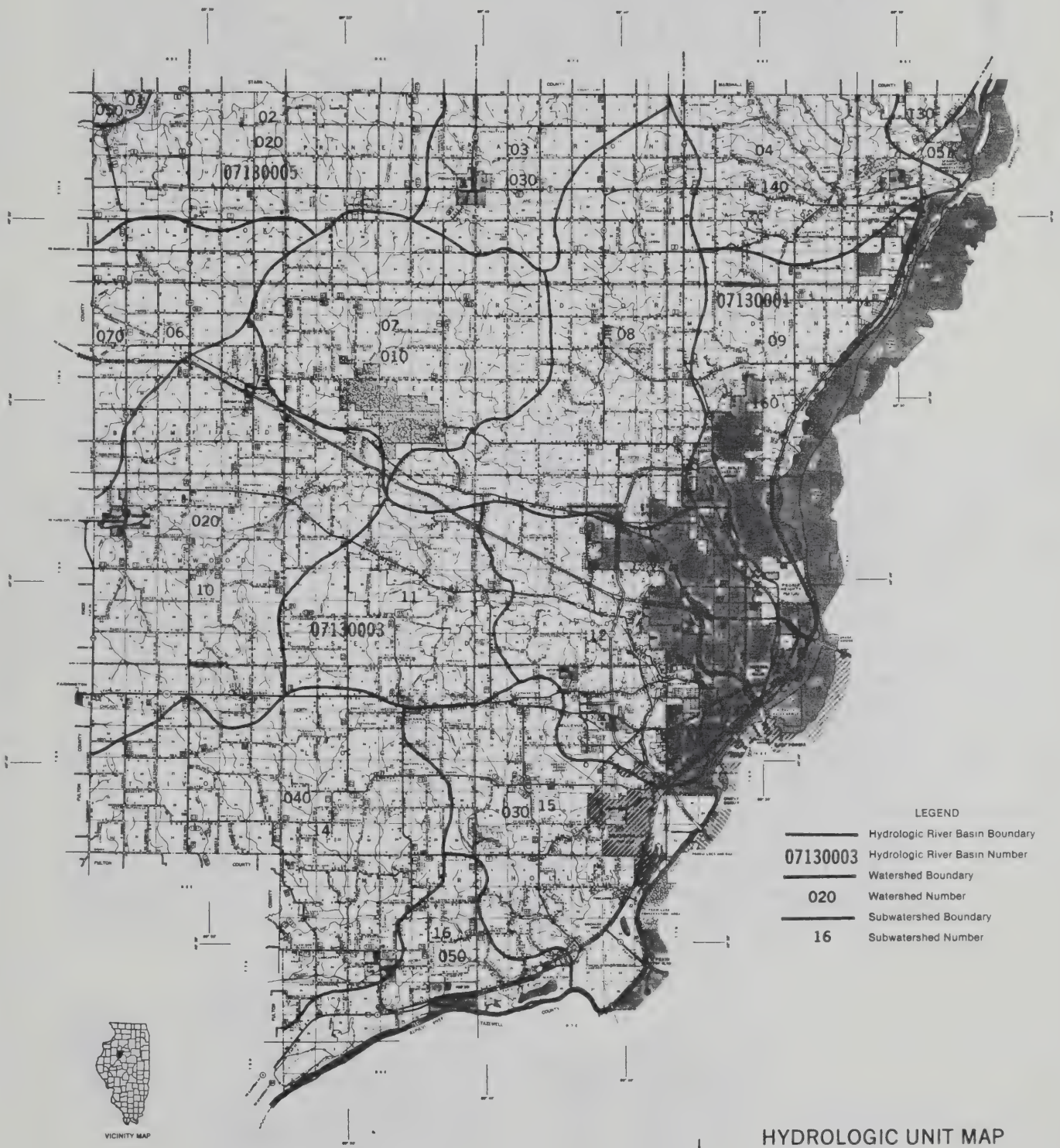
Source: 1981 Illinois General Highway Map And Information From SCS Field Personnel. Polyconic Projection.

JULY 1985 4-R 39367.1

Appendix B

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE



HYDROLOGIC UNIT MAP

PEORIA COUNTY, ILLINOIS

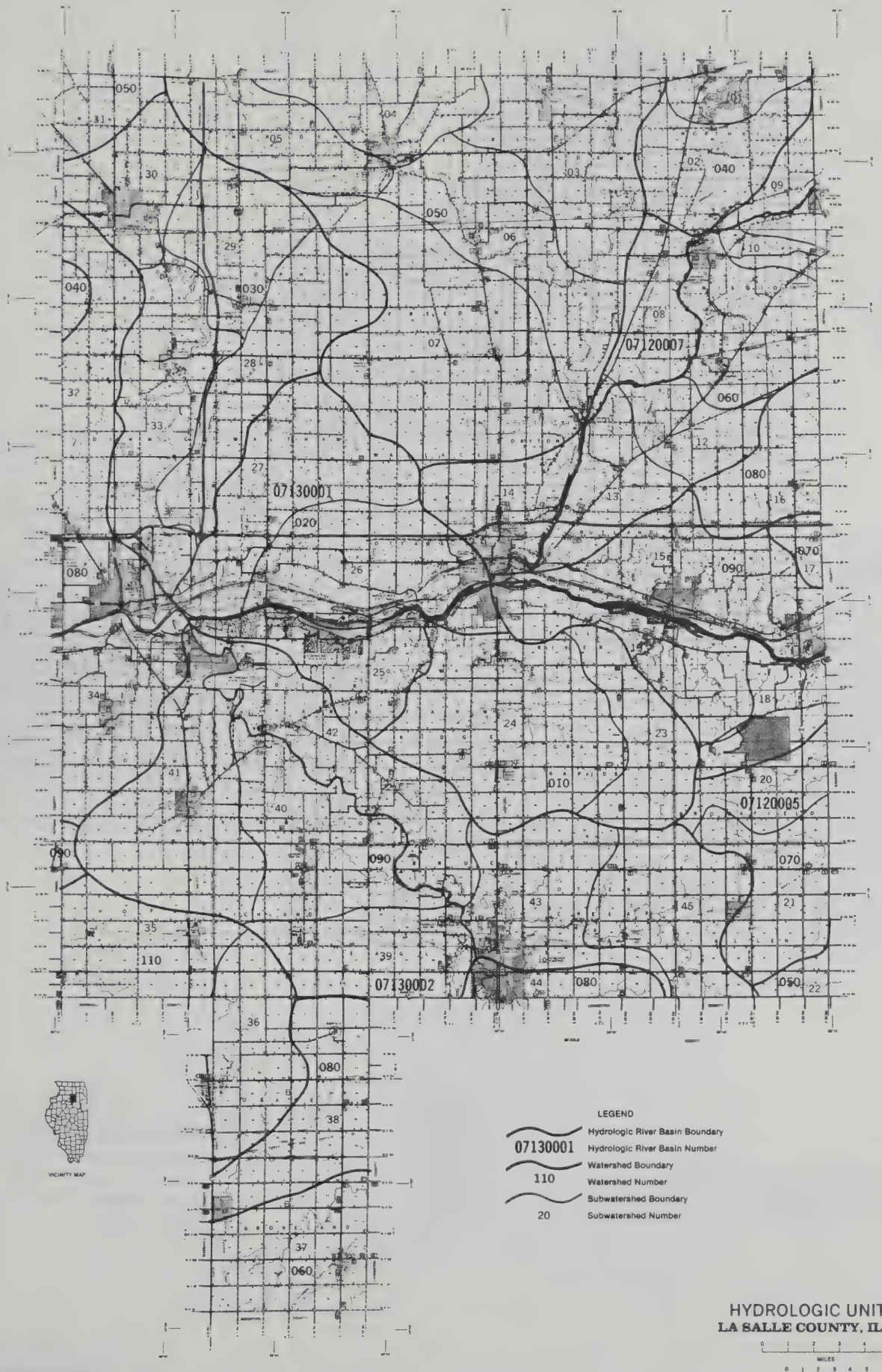
SOURCE 1982 Illinois General Highway Map And Information From SCS Field Personnel. Polyconic Projection.

DECEMBER 1985 4-R 39592

USDA-SCS-NATIONAL MAPPING DIVISION, FT WORTH, TX 1986

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE



HYDROLOGIC UNIT MAP
LA SALLE COUNTY, ILLINOIS

0 1 2 3 4 5
MILES
0 1 2 3 4 5
KILOMETERS

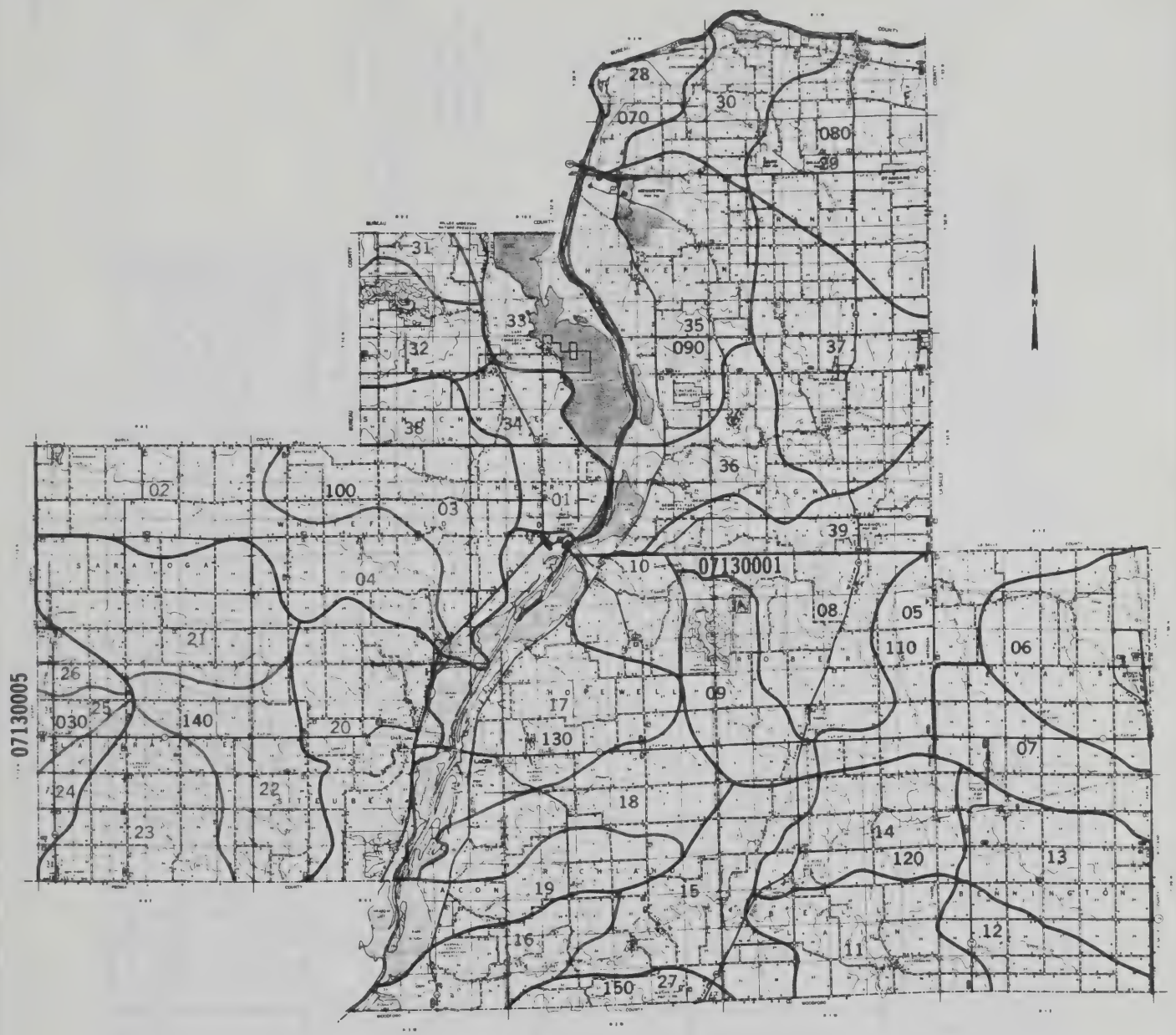
Source: 1981 Illinois General Highway Map and Information from SCS
Field Personnel: Polyconic Projection

JULY 1985 AR 39313 1

USDA-SCS FORT WORTH, TEXAS 1985

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE



LEGEND

———	Hydrologic River Basin Boundary
07130001	Hydrologic River Basin Number
———	Watershed Boundary
050	Watershed Number
———	Subwatershed Boundary
10	Subwatershed Number

VICINITY MAP

HYDROLOGIC UNIT MAP
MARSHALL AND PUTNAM COUNTIES ILLINOIS

0 1 2 3 4 5
MILES

0 1 2 3 4 5
KILOMETERS

Source: 1982 Illinois General Highway Map
And Information From SCS Field
Personnel Polyconic Projection

FEBRUARY 1986 4-8-307

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

HYDROLOGIC UNIT MAP

BUREAU COUNTY, ILLINOIS

0 1 2 3 4 5
MILES
0 1 2 3 4 5
KILOMETERS

SOURCE 1979 Illinois General Highway Map
And Information From SCS Field
Personnel Polyconic Projection

JANUARY 1986 4-R 39611

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

HYDROLOGIC UNIT MAP
TAZEWELL COUNTY, ILLINOIS

LEGEND

———	Hydrologic River Basin Boundary
07130004	Hydrologic River Basin Number
———	Watershed Boundary
080	Watershed Number
———	Subwatershed Boundary
08	Subwatershed Number

MILES 0 1 2 3 4 5

KILOMETERS 0 1 2 3 4 5

VICINITY MAP

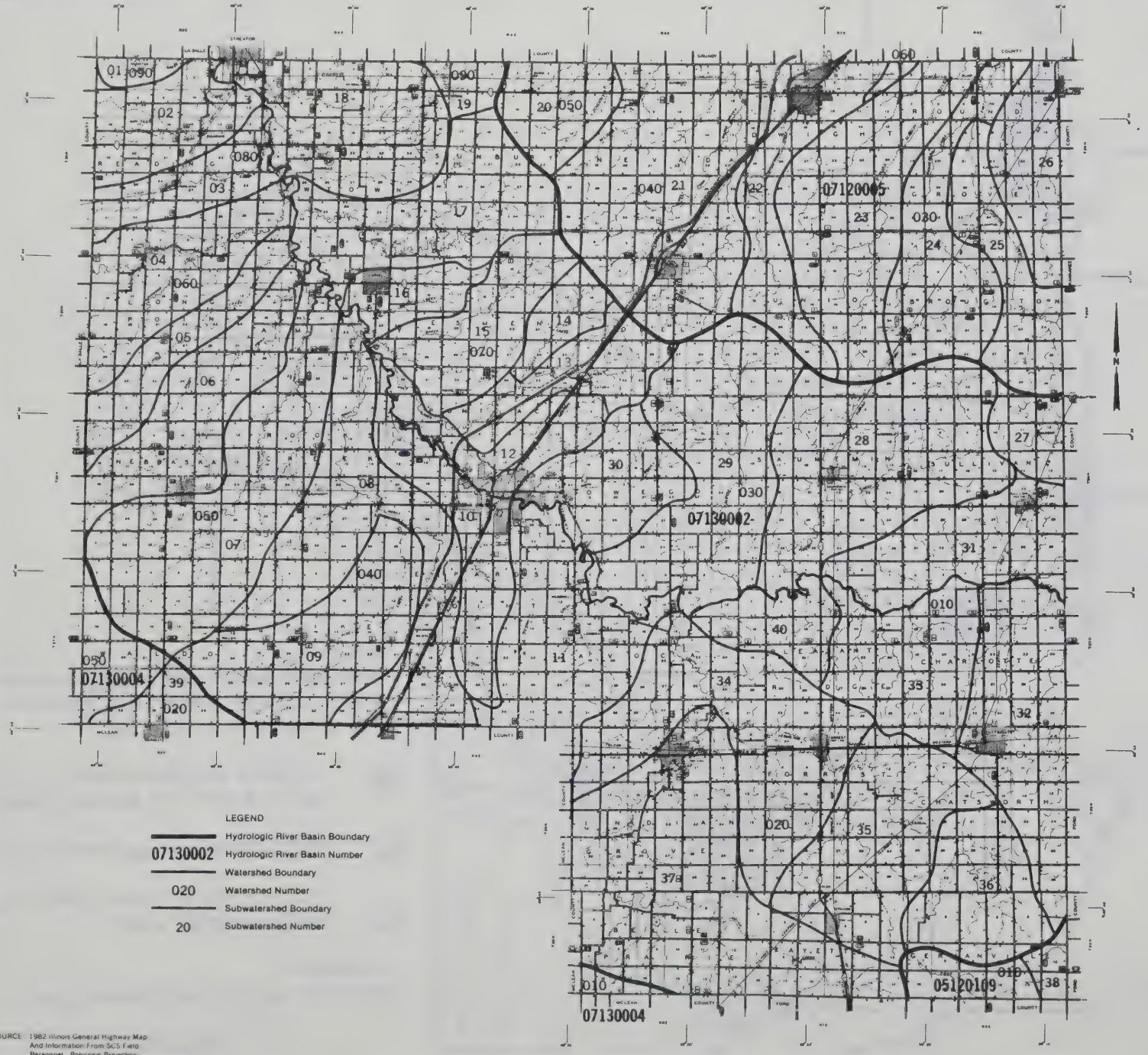
SOURCE 1982 Illinois General Highway Map And Information From SCS Field Personnel Polyconic Projection.

AUGUST 1986 4-P 39896

USDA-NATIONAL CARTOGRAPHIC CENTER, FT. WORTH, TX.-1986

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE



LEGEND

	Hydrologic River Basin Boundary
07130002	Hydrologic River Basin Number
	Watershed Boundary
020	Watershed Number
	Subwatershed Boundary
20	Subwatershed Number

VICINITY MAP

HYDROLOGIC UNIT MAP

LIVINGSTON COUNTY ILLINOIS

0 1 2 3 4 5 MILES

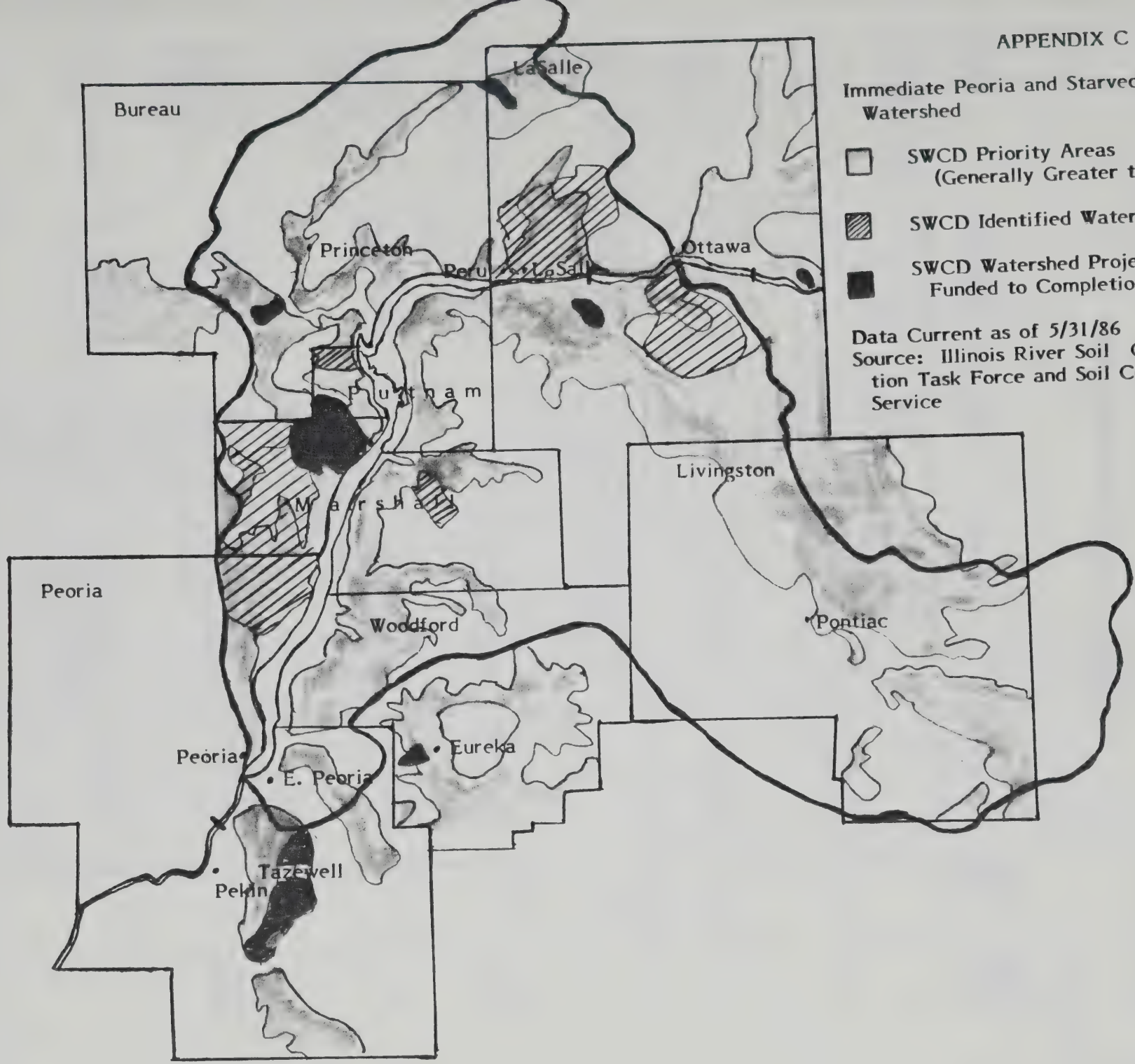
0 1 2 3 4 5 KILOMETERS

SOURCE: 1982 Illinois General Highway Map And Information From SCS Field Personnel. Polyconic Projection

USDA-SCS-NATIONAL CARTOGRAPHIC CENTER, FT. WORTH, TX.-1987

DECEMBER 4 R 39952

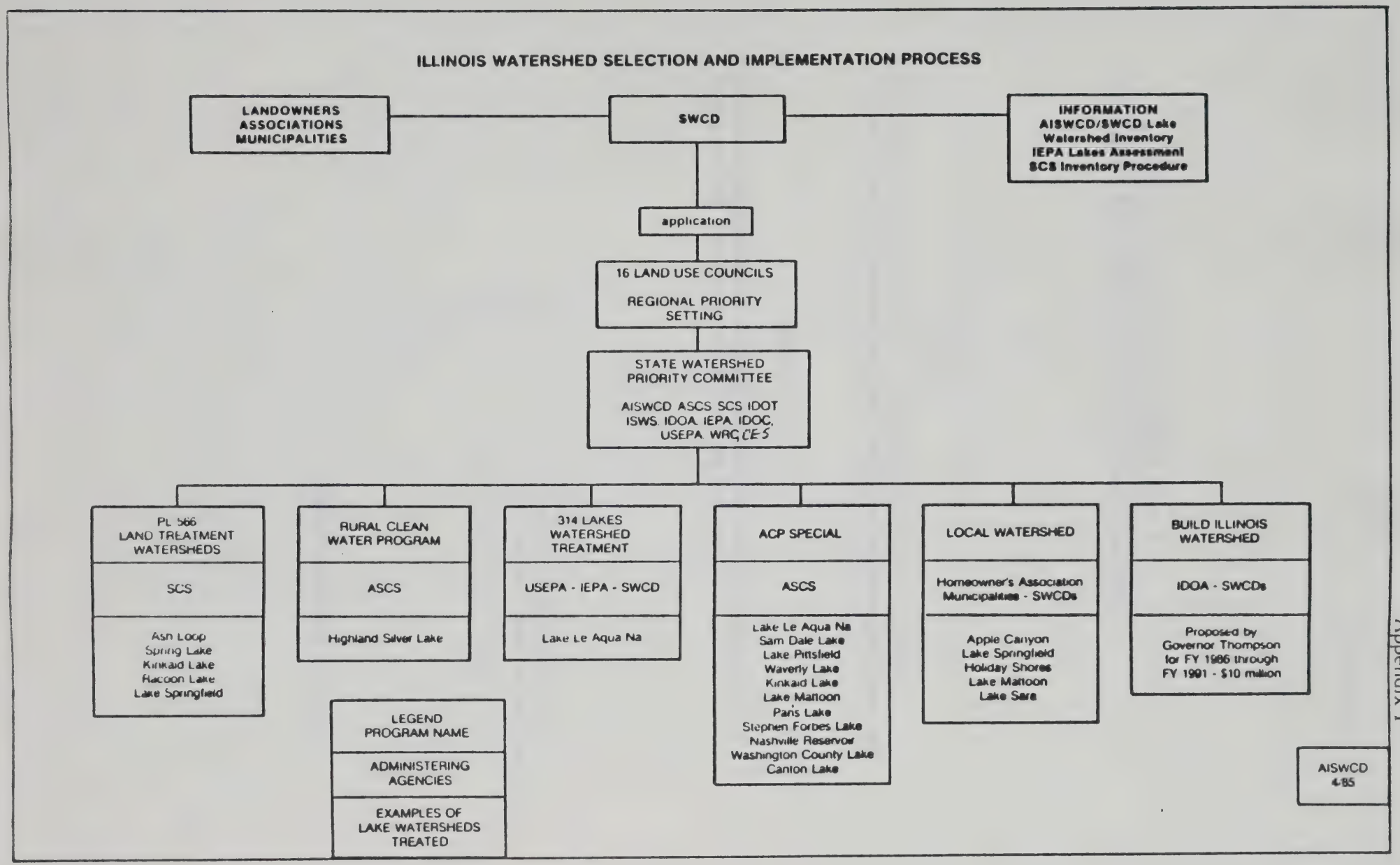
APPENDIX C


Immediate Peoria and Starved Rock Watershed
SWCD Priority Areas (Generally Greater than 2 "T")
SWCD Identified Watershed Project
SWCD Watershed Project Areas Funded to Completion
Data Current as of 5/31/86
Source: Illinois River Soil Conservation Task Force and Soil Conservation Service
LaSalle
Bureau
Princeton
Peru
LaSalle
Ottawa
Putnam
Marshall
Livingston
Peoria
Woodford
Pontiac
Peoria
E. Peoria
Eureka
Tazewell
Pekin

POTENTIAL WATERSHED PROJECT FUNDING IN ILLINOIS

4/86 AISWCD

PROGRAM	ADMINISTERED BY	PURPOSE	FUND USES	RANGE IN $	DURATION YEARS	PROJECTS FUNDED TO DATE
Municipal Government (water supply, flood control, recreation)	cities, conservancy districts, Soil & Water Conservation Districts (SWCD's)	water quality, sediment reduction, recreation	cost sharing, conservation equipment, technical assistance	$5,000-50,000/yr	2-5	9
Lake Homeowners Associations	associations, SWCD's, Ag. Stab. & Conservation Service	water quality, sediment reduction, recreation	cost sharing, technical assistance	$700-25,000/yr	1-5	4
Build Illinois Watershed Land Treatment Program	Illinois Department of Agriculture and SWCD's	reduce erosion, sedimentation, nutrient runoff	cost sharing to meet tolerable soil losses	$15-200,000/yr	2-5	58
Illinois Department of Conservation	Illinois Department of Conservation, SWCD's	Wildlife habitat & fisheries improvement, streambank protection	Demonstration, technical assistance, cost sharing, monitoring		Pending	
Illinois Department of Transportation	Illinois Department of Transportation, Division of Water Resources	Flood Control	Planning, Technical assistance, cost sharing	Dependent on Project	1-10	several hundred
PL83-566 Watershed Protection and Flood Prevention Act	Soil Conservation Service	Flood control, water quality, sediment reduction, recreation fish and wildlife	planning, technical & administrative services, cost sharing	$100-200,000/yr	2 - 5	22
Agricultural Conservation Program Special Projects	Ag. Stab. & Cons. Service	reduce erosion and nutrient runoff, improve forest & wildlife habitat	cost sharing for practices, technical service	$10-50,000/yr	1	several hundred
Rural Clean Water Program	Ag. Stabilization & Conservation Service	water quality improvement through erosion & nutrient runoff controls	information, tech. assistance, administration, cost sharing on practices	$500,000/yr	5	1
Clean Lakes Program (S.314 of PL92-500)	USEPA/IEPA	Lake protection & restoration	diagnostic/feasibility studies, technical assistance, cost sharing	$36-927,000	1-4	5


ILLINOIS WATERSHED SELECTION AND IMPLEMENTATION PROCESS
LANDOWNERS
ASSOCIATIONS
MUNICIPALITIES
SWCD
INFORMATION
AISWCD/SWCD Lake
Watershed Inventory
IEPA Lakes Assessment
SCS Inventory Procedure
application
16 LAND USE COUNCILS
REGIONAL PRIORITY
SETTING
STATE WATERSHED
PRIORITY COMMITTEE
AISWCD ASCS SCS IDOT
ISWS IDOA IEPA IDOC,
USEPA WRC CES
PL 566
LAND TREATMENT
WATERSHEDS
SCS
Ash Loop
Spring Lake
Kinkaid Lake
Racoon Lake
Lake Springfield
RURAL CLEAN
WATER PROGRAM
ASCS
Highland Silver Lake
314 LAKES
WATERSHED
TREATMENT
USEPA - IEPA - SWCD
Lake Le Aqua Na
ACP SPECIAL
ASCS
Lake Le Aqua Na
Sam Dale Lake
Lake Pittsfield
Waverly Lake
Kinkaid Lake
Lake Mattoon
Paris Lake
Stephen Forbes Lake
Nashville Reservoir
Washington County Lake
Canton Lake
LOCAL WATERSHED
Homeowner's Association
Municipalities - SWCDs
Apple Canyon
Lake Springfield
Holiday Shores
Lake Mattoon
Lake Sara
BUILD ILLINOIS
WATERSHED
IDOA - SWCDs
Proposed by
Governor Thompson
for FY 1986 through
FY 1991 - $10 million
LEGEND
PROGRAM NAME
ADMINISTERING
AGENCIES
EXAMPLES OF
LAKE WATERSHEDS
TREATED
AISWCD
4/85

Appendix F

MODEL SWCD PLAN OF WORK FOR A "LOCAL" LAND TREATMENT WATERSHED PROJECT

MISSION:

To improve the water clarity and reduce sedimentation rate in Pidgeon Lake by assisting landusers apply soil conservation practices

GOAL:

Increase average Secchi transparency by 24" and reduce sediment inflow to 100 tons per year by reducing soil loss.

Prepared by:

Association of Illinois Soil
and Water Conservation Districts

In cooperation with:

Date: November 3, 1983

ILLINI SOIL AND WATER CONSERVATION DISTRICT
Sampson Quality, Chairman

1984

PLAN OF WORK FOR THE PIDGEON LAKE WATERSHED

Watershed Size: 6000 Acres Lake 320 Acres

Legend:

District Conservationist	DC
Resource Conservationist	RC
Soil Conservationist	SC
ASCS Representative	ASC
County Executive Director	CED
Department of Conservation	DOC
Soil Conservation Technician	SCT
Extension Farm Advisor	CES
Illinois Environmental Protection Agency	IEPA

	Who	When	Man Days	Progress
I. INFORMATION GATHERING	(first person has leader-ship respon.)			
Purpose: Provides general information to the SWCD directors, staffs and cooperating agencies. Develop a steering committee for project direction with agency advisors to keep the committee informed of project activities.				
Goal: Become knowledgeable about the watershed and its impact on the lake.				
Actions:				
1. Review existing lake and watershed data.	DC	Jan.	1	
2. Conduct informal information and review meeting.	DC,CES,CED,			
3. Present watershed data to District Directors, district staff and cooperating agency committees and staff, and tour the watershed to observe the topography and land use.	RC,DOC DC	Jan Jan	1 3	
4. Appoint an SWCD director as liaison.	Dist.Chmn	Jan		
5. Select a skeleton watershed steering committee (2-3 landowners) and expand as necessary (consider city or county officials, teachers, etc)	Dist.Dir	Feb		
6. Present information on lake use and potential improvements to SWCD board, staff and cooperating agency personnel.	DOC	Jan	1	
7. Work with IEPA to establish volunteer lake monitoring.	RC	Feb		
8. Summarize watershed data for DNR watershed tracking system (See appendix)				
II. PROBLEM IDENTIFICATION				
Purpose: Identify problem areas of the watershed which require land treatment to reduce erosion, reduce sediment and improve water quality.				
Goal: Identify watershed areas impacting water quality.				
Actions:				
1. Prepare and secure maps and overlays.	RC	Feb	5	
2. Identify the areas B slopes and above on cropland that are the most likely sediment sources.	DC,RC	Feb	6	

	Who	When	Man Days	Progress
III. PRELIMINARY CONTACTS WITH LANDOWNER/OPERATORS				
Purpose: Evaluate Land user interest in the watershed to determine future needs and level of information and education to implement the project.				
Goal: Determine landowner/operator interest in the area needing treatment.				
Actions:				
1. Identify landowners in the treatment area.	ASC	Feb	2	
2. Develop a watershed mailing list.	ASC	Feb	1	
3. Determine active SWCD cooperators.	Dist.Dir	Feb	1	
4. Contact the non-cooperators and in-active cooperators in the treatment area.	RC,SCT	Mar	10,5	
5. Prepare a summary of landowner interest and review with District Board and all Agencies.	RC or DC	June	2	
IV. INVENTORY AND EVALUATION				
Purpose: Collect basic inventory data and evaluation to determine gross erosion, sediment delivery, conservation practice needs, conservation planning needs and costs to meet project goals.				
Goal: Identify treatment needs, costs and project effects.				
Actions:				
1. Determine the land treatment alternatives for the area needing treatment.	DC,SC	Feb	2,2	
2. Determine the acres needing treatment to meet the 1988 "T" goals.	RC	Apr	2	
3. Estimate the number of conservation plans needed and the man days to complete.	DC	Feb	2	
4. Estimate the conservation practice application needs and man days needed.	SCT	Feb	3	
5. Develop preliminary cost estimates.	DC	Feb	1	

	Who	When	Man Days	Progress
V. GOAL SETTING				
Purpose: Establish progress items which can be measured and observed. This could include erosion reduction, sediment reduction, reduced turbidity, reduced nutrients, reduced loss of storage volume, or others.				
Goal: Set realistic goals, measurable and use oriented goals to develop public support for project.				
Actions:				
1. Request assistance from IEPA if needed.	DC			
2. Determine reasonable goals.	DC,DOC, IEPA			
VI. PUBLIC INFORMATION AND EDUCATION				
Purpose: Develop and implement a watershed project information and education program with land users and the general public.				
Goal: Inform and educate watershed residents and the general public of watershed improvement proposals and methods.				
Actions:				
1. Develop a watershed information/education plan.	CES	Jan		
2. Prepare a fact sheet and/or brochure about the watershed and mail to area landowners, interested persons and organizations.	CES,RC DOC	Feb	2	
3. Develop an educational program on conservation practice treatment needs.	CES	Mar	2	
4. Appoint an information committee to plan and carry out an information program. Use mailing list to promote the watershed project.	Dist.Chmn	Feb		
5. Conduct a watershed tour for landowners.	Dist.Dir DC,CES,ASC	Apr	3	
6. Hold mutual interest group meetings.	DC,SC	July/Nov	3	
	CES,RC DOC	Feb	5	

	Who	When	Man Days	Progress
I CCMMUNITY SUPPORT				
Purpose: Inform citizens and public officials regarding the needs and benefits of the project and the opportunities for their support and acceleration of land treatment application.				
Goal: Seek commitments for the project from potential project beneficiaries.				
Actions:				
1. Identify citizens interested in the lake water quality (city officials, water plan operators, lakeshore residents, service clubs, etc.)	Dist.Dir	Mar	1	
2. Provide assistance as necessary in securing volunteer lake monitors.	RC	Mar	3	
3. Conduct an interested citizens tour.	DC,CES, Dist.Dir,ASC	June	2	
4. Meet with interested citizens or organizations and inform them about how they can help implement the project.	Dist.Dir	Sep	2	
5. Conduct a joint meeting of the steering committee and city officials on the watershed needs and solutions.	Dist.,Dir	Nov	2	
II. PROJECT PLANNING AND SECURING AGENCY COMMITMENTS				
Purpose: Develop a project implementation plan which includes the commitments of cooperating agencies and others.				
Goal: Provide direction to staff and cooperating agencies.				
Actions:				
1. Develop a long range or multi-year plan to complete the project.	Dist.Dir	Sep	2	
2. Request that project plans be integrated into cooperating agency annual work plans.	Dist.Dir	Sep	2	

	Who	When	Man Days	Progress
3. Work with ASCS in prioritizing financial assistance to the area.	Dist.Chmn	Apr	1	
4. Secure assistance from CES for the information and education program.	Dist.Dir,DC	Feb	1	
5. Meet with ASCS committee to request an ACP special project if applicable.	Dist.Brd	Sep	2	
6. Request IEPA evaluation of potential water quality monitoring sites.	Dist.Dir	Feb	2	
7. Firm up the urban commitment.	Dist.Dir	Nov	2	
8. Determine if federal or state assistance is needed to complete project in a reasonable time and request as needed.	Dist.Dir DC,RC	Nov Nov	1 3,3	
9. If applicable, submit application for assistance to the State watershed priority selection committee.	RC	Dec	4	
PROJECT IMPLEMENTATION				
IX. PROGRESS REPORTING AND EVALUATION				
Purpose: Evaluate the project and review progress with those concerned.				
Goal: Provide information related to established goals and revise plans as needed to complete project.				
Actions:				
1. Determine and report progress to:	DC,RC	Monthly	6	
SWCD Board	Dist.Dir			
Landowners	RC	Dec	2	
County Board	Dist.Dir	Dec	1	
Urban Community	RC	Dec	2	
Department of Agriculture (DNR)	RC			
2. Review annual goals and revise and update as needed.	RC	Dec	2	